UNIT PLANS

TYPICAL ROOM ARRANGEMENTS
SITE PLANS AND DETAILS
FOR
LOW-RENT HOUSING

HOUSING DIVISION
PUBLIC WORKS ADMINISTRATION
UNITED STATES GOVERNMENT
WASHINGTON, D. C.

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HORATIO B. HACKETT, DIRECTOR

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· FOREWORD ·

THIS book contains plans and accompanying data which have been designed and assembled by the Housing Division of the Public Works Administration. Its purpose is to give architects and engineers the benefit of this information in designing low-rent housing units. In the absence of organized data the Government has found it necessary to provide this useful material.

While this collection only represents a starting point, it is felt that through the use of it the architects will have definite suggestions with which to approach the problem. The information contained in these pages should substantially speed the work of proper planning.

Within a surprisingly short time low-rent housing has become a reality. In view of the rapid strides being made these plans are to be considered only in the light of today's viewpoint. The objective of these plan studies is the establishing of standards of planning rather than standardization of plan. The present solutions of housing problems must be looked upon as progressive steps in our education in this field.

The subject of low-rent housing is new to most architects. In this type of work the house is not an isolated unit. Rather it is a component part of a still larger unit—the regional community, including industrial areas, shopping centers, parks, and residential sections, all co-ordinated with transportation.

It must be kept in mind that the typical units incorporated are for guide purposes only. No attempt has been made to solve individual problems or local site conditions. Instead, the effort has been to present typical layouts covering different units and combinations of units, in the belief that the architects will use them as aids to develop their own ideas, both for the individual unit and the group plan.

The broad scope of housing incorporates the many different phases of group planning, such as community buildings, new street systems where necessary, and zoned areas, all of which require detailed study to satisfy the individual demands required by varying local conditions. The unit plan, on the other hand, is a specific problem. Hence its emphasis here.

It is to be hoped that these ideas will open new avenues of approach in the minds of those using them. If this assemblage of typical plans acts as a stimulus and guide to aid the architects in creating their own ideas, or assist them in the development of their own ideas, this book will have accomplished its aim.

If we all approach this great work with minds open to its problems and opportunities—technical, social, and economic—and thus are prepared to do jobs worthy of the chances given us, we shall be steadily adding to this book interesting and important contributions from architects, engineers, and builders to whom it is made available.

HORATIO B. HACKETT,
Director of Housing.

WASHINGTON, D. C.,
March 4, 1935.

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· BASIC FEATURES OF LOW-RENT HOUSING ·

Low-rent housing provides shelter embodying modern standards of planning, construction, and sanitation at rentals not to exceed one-fourth of the average family income of those in the lower income groups.

Ultimate success is dependent on the following items:

1. Low land cost.
2. Efficient design.
3. Sound and economical construction.
4. Low interest rate.
5. Long period of amortization.
6. Capable management.
7. Low operating and maintenance costs.

In order to approach a low-rent housing project properly, there are four major features which must be considered. They are: location of project, design of buildings, treatment of grounds, and costs as determined by selection of materials and equipment.

1. LOCATION OF PROJECT

The selection of the site is the first and most important step in the proper development of low-rent housing, and is selected only after the most careful and thorough study of the social and economic conditions in the community. General location must be considered in determining the type and kind of housing to be used in a given project.

The characteristics of the city for which the project is planned, the size and density of population, kinds and locations of industry, cost of land, and accessibility, are main items that influence the kind of housing units to be selected.

Obviously, housing in warm climates has many variations from that built in northern areas; even the cubic contents of the building may be altered considerably due to a variation in climate.

The importance of orientation in the general scheme should be weighed. Sunlight is a most important feature in modern housing, but this factor has been sometimes overemphasized. Equally good exposures may be bad through a number of different solutions. The matter of prevailing winds comes in this same category.

2. DESIGN OF BUILDINGS

Accepted standards of decent living do not decline proportionately with the family earning power. The lower levels of income offer no inducement to private capital to provide suitable housing, and the only source of habitation left for those in the low income brackets, therefore, is in dilapidated or obsolete buildings. The Government housing plan seeks to meet this situation by creating structures for these citizens that will provide the fundamentals of good, clean living without extravagances. Through Government aid, dwellings for the lower income groups can be provided at rents substantially less than private capital can afford.

A most important factor to be borne in mind is that the standards of accommodation and equipment generally accepted at the present time may rise rather than fall during the life of the building. In view of this fact fair standards must be maintained so that the value of the building will not depreciate early in its life.

The architecture of low-rent housing projects should express simplicity, fitness, harmony, and honesty. In addition, there must be a logical and agreeable blending between the arrangement and the design of buildings in relation to that of open areas. A housing development with excellently designed buildings and poorly planned and inadequate open spaces will be as unsuccessful as the housing project with properly designed open areas and which lacks a logical solution of the architectural problem.

3. TREATMENT OF GROUNDS

The use to be made of all open areas forms an important part in the development of a low-rent housing project. Without adequate open areas, the modern housing development would be a failure, whether in the congested portions of a city or in a less congested suburban section. In the current project plans, approximately three-fourths of the total land area is devoted to space for lawns, play spaces, and so forth.

Previously, in congested districts the ground area not occupied by buildings has been reduced to the minimum permitted by local building codes—usually about twenty percent of the total area being open—and this has been given to back yards and light courts. This meant that the buildings themselves occupied eighty percent of the land. That practice

has proven to be most disastrous and bas resulted in the present slum conditions. More thought must now be given not only to the amount of open space bu. to its proper use as well.

Open areas provide the answer to three important problems—(a) circulation and access, (b) passive recreation, and (c) active recreation. The open area is naturally separate ' into two parts—namely, tbe area required for circulation and the area required for uses other than traffic. Circulation requirements sbould be limited and sufficient only to meet the absolute requirements of utility in the physical operation of a bousing project.

The area not required for roads, yards, courts, and walks is developed in present-day housing projects for lawns, small parks, garden courts recreation areas, and plantings. The class of people occupying the houses determines to a great extent the character of treatment applied to tbe grounds.

Lawn areas are tbe dominating feature in the average project. Tbey provide the most immediate means for "passive" recreation which includes enjoyment of the outdoors with pleasing views from windows, and also the opportunities for sitting and strolling in the open.

Tbe extent and location of play space is a perplexing problem. Facilities for active recreation may become a definite liability instead of an asset, if not properly located. No attempt is made bere to analyze tbe detailed problems involved. The space relating directly to children's play areas, swimming pool facilities, wading pools, and possibly tennis courts, may logically be considered as a part of the recreational facilities to be provided in an open area. But tbe larger play areas, especially for forms of baseball, football, etc., should be provided entirely on play fields adjacent or near to a bousing project.

Tbe landscape treatment is also influenced by the type of structure or unit predominating in the project. Apartment houses lend themselves to community play areas and lawns or parks, wbereas row bouses and flats are generally treated witb individual gardens.

4. COSTS

Structural costs are principally dependent on three variable items—(1) the location of a project, (2) the type and quality of construction, and (3) the price range at the time of building. Inasmuch as different combinations of tbese factors will result in extreme cost deviations, even wben used in connection witb identical plan units, it was agreed that any attempts at pricing units contained in tbis book would be futile. In place of theoretical cost figures, it will be found that the major quantity statistics are noted on eacb plan, wbich, when combined witb prevailing unit prices, will assist in arriving at the proper cost quotation.

The type of dwelling unit to predominate in a project is determined by a study of conditions characteristic of its particular location. It is a well established fact that selection of the kind of unit to be used greatly influences the ultimate cost of construction, and maintenance as well. This is mentioned in order to stress the importance of this choice of dwelling type.

Next in importance to building type and finish, the matter of building costs as influenced by geographical location is of chief concern. Material and labor prices show considerable variations in different sections of the country principally because of local market conditions and the situation of a project with respect to the source of construction materials. Obviously, the law of supply and demand is a most important factor in determining prices and also the amount of freight and trucking charges—therefore every effort should be made to use local products wherever possible.

Some mention should be made of the relative construction costs of certain items as affected by different sized units. For example, in figuring plumbing the cost per apartment is fixed, regardless of whether the living unit consists of one room and bath or five rooms and bath. Figured in terms of cost per room, the one-room unit has to include the cost of one entire bathroom and kitchen equipment, whereas in a larger unit this same cost is absorbed by five rooms. This emphasizes the fact that great care should be exercised in determining tbe number of rooms per apartment. Other items must be figured in the same way.

INITIAL COSTS vs. MAINTENANCE

The first consideration in low-rent housing must be given to comfort, health, and safety. Certain refinements must necessarily be regarded as secondary in importance. In this type of building the architects are confronted with different problems than generally exist in the usual practice, in that the structure must be studied for maintenance and upkeep charges, which dictates a wise choice in the methods and materials of construction. A careful analysis should be made, comparing the items of greater initial cost, but with low maintenance charges, with items costing less to install, but with greater upkeep expense. Each item must be classified according to final cost as developed by the operating statement.

Low-rent housing is to be approached from two points of view—that of the tenants who will occupy the building, and that of the owner or builder. The occupants will seek desirability and practicability along with economy, while the owner must strive primarily for efficiency and economy, so that the financial structure will be sound, yet the surroundings must prove inviting to prospective tenants.

· TYPES OF UNIT PLANS ·

The unit plan system was devised by the Housing Division in order to simplify the work of the architect. It presents various combinations of dwelling units which may be assembled into compact groups, so that the architect can devote a good part of his time to the proper assembling of these units rather than to the creating of workable plan combinations. By so doing it is felt that a great deal more effort may be put into the more intricate details of architectural design, comparative costs, and the treatment of grounds.

Unit plans are the basic element of building composition. They may be arranged in many combinations. As the site plan for a project is the aggregate of all the housing units plus special community buildings to be included, so the housing unit is a grouping of all the apartments, and the dwelling unit or apartment, in turn, the aggregate of all of the individual rooms.

Selection of the units to be used for any particular project is determined through a study of local conditions and site characteristics. Many regional factors may also affect the ultimate choice; therefore various types of plans are presented. The effort has been to show the best available plans in each group, leaving it to the architect and others familiar with specific local problems to make the final choice.

Certain computations and suggestions are given in connection with each plan shown. This information is intended to act as a guide in aiding the reader to comprehend the relative features of each plan.

In passing on the comparative merits of the various unit plans, it is most important to note that the mathematical evaluation of any layout can be made only after the living features have been decided. The proper relationship of rooms and the desirability of a plan must be determined. Without these factors the mathematical calculations would be useless, no matter how accurately made. For example, the least desirable plan, one in which all rooms have to be entered directly from the living room, would unquestionably result in the most efficient comparative figures. But the efficiency is contingent on good basic design of the layout and its relationship to the assembled unit.

TYPES OF UNIT PLANS PRESENTED

The types of plans presented in this book are as follows:

A. Apartment house type:

1. Architectural variations:

   T-plans.
   Ribbon plans.
   Cross plans.
   Balcony plans.
   Gallery plans.

2. Construction variations:

   Center column plans.
   Off-center column plans.

B. Flat house plan type:

   Ribbon plans.
   Balcony plans.

C. Row house plan type.

   Ribbon plans.
   Balcony plans.

D. Gallery plan type.

E. Combination flat- and row-house type.
   A three-story building made by combining B and C.

F. Typical site plans, showing possibilities of combining various unit types.

G. Groups of miscellaneous ineffective plan studies presented for purposes of comparison.

H. Details—comparative sheets illustrating different approach to the same problem.

In many cases it may be found advisable to combine the various types listed in order to increase the rentability of the project and to add to the architectural composition of the site plan.

DESIGN AND CONSTRUCTION CONSIDERATIONS

This phase of the work is far more important in low-rent housing than in any other type of building construction. Not only must the project be studied for the most efficient and economical methods, but due consideration should also be given to long life and durability of structure. Then the mechanical trades present a problem all of their own, as for example heating, in which studies have to be made first for the kind of system to be employed, and second whether to use a central heating plant, group heating, or individual units.

Other details include the following:

ON-CENTER vs. OFF-CENTER COLUMN

The exact placing of the line of columns between the two exterior walls has long been a subject of argument among architects, and quite rightfully so, as this is an all-important factor in determining the unit plan layout. There are advantageous factors as well as disadvantages attached to each, and for that reason both types are presented. Actual examples have proven that no appreciable difference exists in construction cost between the two methods, although the greater plan possibilities of the off-center plans should be noted.

T-PLANS

Contrary to the general belief that this type of plan should only be used where a break exists in a series of straight ribbon plan, it has been found that the T-plan is most fitting and adaptable for ribbon use. In apartment house design the T-plan not only reduces stair and incinerator costs, but it also lowers the exterior wall perimeter expressed in terms of lineal feet per room. Furthermore, it also well serves the situation where garden and penthouse apartments may be profitably used.

RIBBON PLANS

This type of plan provides an interesting variation to the T-plan for apartment house use, and is the accepted form for flats and row houses. The through circulation of air in each plan presented should be noted.

BALCONY PLANS

Balconies have been found very effective in buildings located in warm climates and also in other projects situated in cities where balconies are expected by tenants. They also allow for very pleasing architectural variations where it is desirable to break the flat wall elevation. Initial cost must be considered as well as the darkening of rooms directly off balcony units.

GALLERY PLANS

Generally limited in use to warmer climates, and where employed successfully they will provide a most interesting architectural treatment.

SPECIAL CONSIDERATIONS

In making the choice of unit types certain special features not listed above deserve attention. Principal among these are basements, penthouses, stores, garages, and community buildings.

BASEMENTS

The solution of the basement problem is very often a deciding factor in determining the type of units to be used: first decide upon the use to which it is to be put, and then whether or not it is economical to build a basement. Low level ground or soft material may make basements possible at comparatively little extra cost. Wherever possible, the use of the garden apartment in the case of the apartment house type greatly adds to the use to which the basement can be put. For example, in a 3-story building unit consisting of six apartments, without a basement garden unit, each of the six apartments will have 16⅔ percent of the entire basement space; with the garden apartment using approximately one-third of the total basement space, the result is that seven apartments share two-thirds of the basement—then each apartment shares only two twenty-firsts, or less than ten percent. Furthermore, when the garden apartment is used in conjunction with a T-plan it should be noted that the remaining portion of the basement is still made continuous.

PENTHOUSES

In apartment house units only, a similar study should be made of the penthouse floor where it is found that an additional apartment might be made available by using the same amount of exterior wall construction and by simply adding a "closing" wall. This will hold true in the case of the T-plan, and with some slight modifications in the cross-plan. It should be especially noted that the penthouse unit is most efficient, from a cost angle, where the same stairway and incinerator makes available this additional unit, particularly in buildings erected in localities where the stair is required to run through to the roof because of code regulations and without consideration of use of roof.

STORES AND GARAGES

Regardless of the predominating kind of unit to be used, except in special cases, it is preferable to place these accessories in separate buildings in much the same manner that other community buildings are treated.

COMMUNITY BUILDINGS

The size of the project will dictate just how much community facilities will be made available. Location and amount of structure devoted to this use cannot be generalized and therefore individual study must be made on each development to properly determine these factors.

OUTSTANDING CHARACTERISTICS AND FACTORS IN VARIOUS HOUSE TYPES

Descriptive item	Apartment house type	Row house type	Flat house type	Combination flat and row house type	Gallery type
Land cost	Generally expensive	Typical of inexpensive land.	Typical of inexpensive land.	Characteristic of average price land.	From low to average.
Number of rooms per acre.	High	Extremely low	Low	Fairly high	Fairly high.
Number of stories	3 or 4	1 or 2	2	3	2.
Basements	Usually required	Optional	Optional	Optional but generally required.	Average.
Construction cost	Lower per room than other types.	More expensive than apartment house or flat house type.	Compares with apartment house type but less than others.	More expensive than apartment houses and flats but less than row houses.	Average.
Maintenance charges	Higher than types where items such as janitor service, etc., are not required.	Low	Low	Low and efficient	When treated as apartment house type runs high, and low when developed as flat house type.
Dwelling unit sizes	2, 3, and 4 rooms	4, 5, and 6 rooms	3, 4, or 5 rooms	3, 4, or 5 rooms	3, 4, or 5 rooms.
Other remarks	Additional community facilities possible. Responsibility of tenant ceases at door of apartment. Lack of individual garden and lawn areas.	Individual garden lawn facilities. Reduced landscape maintenance because of private yards. High degree of privacy. Sleeping quarters on second floor an advantage.	Desirable in communities where tenants enjoy individual garden and lawn facilities. Stairway from second floor to basement is difficult to solve.	Question arises as to practicability of having row house tenant go up one flight. Problem of getting from second-floor unit to basement.	Helps toward a variation of units in a project. Considered characteristic of warm climate only. Living room and bedroom must be on opposite side of gallery.

· HOUSING STANDARDS ·

To make a housing project successful, the dwelling units must be tenanted by those who are not only attracted by the original appeal but who find them so livable that they continue to be happy as occupants. This not only makes "satisfied customers" but reduces the tenant turnover to a necessary minimum. At the same time every known rule of basic economy must be exercised.

With this in mind a schedule of architectural standards was adopted by the Housing Division embodying the following features applicable to low-rent housing:

1. MINIMUM ROOM SIZES

	Minimum dimension	Minimum area
Apartment living room	11 feet	150 square feet.
House living room	10 feet 6 inches	150 square feet.
Main bedroom	10 feet	110 square feet.
Apartment second bedroom	9 feet 3 inches	100 square feet.
House second bedroom	8 feet 6 inches	100 square feet.
Kitchen	7 feet 4 inches	65 square feet.
Bathroom—standard dimensions	4 feet 11 inches by 6 feet 8 inches	

2. RECOMMENDED DOOR SIZES

	Minimum width	Desirable width
Entrance door	2 feet 8 inches	2 feet 10 inches.
Bedroom door	2 feet 6 inches	2 feet 6 inches.
Bathroom door	2 feet	2 feet 4 inches.
Closet door	2 feet 4 inches	2 feet 4 inches.
Linen closet door	1 foot 8 inches	2 feet

NOTE.—All doors 2 feet 6 inches or more in width should be 1¾ inches thick.

3. KITCHENS

(a) Cross currents of air desirable but not readily had.

(b) Advisable to install ready-made cabinets.

(c) Arrangement studied to avoid lost motion, unnecessary stretching or stooping, and to allow for easy opening and tight closing of doors, windows, and drawers.

(d) Preferable to have kitchen located near entrance.

(e) Good artificial lighting for night, suitably located, so as to reach all corners.

(f) Eating in kitchens must be considered and space allowed for this in planning.

4. BATHROOMS

(a) Layout standardized throughout project.

(b) Preferable to locate bathrooms adjoining kitchen so as to use one set of plumbing stacks.

(c) Walls of hard white cement.

(d) Floors and base of tile.

(e) One medicine cabinet in each bathroom

5. PORCHES AND BALCONIES

(a) Mainly a matter of study applied to the locality of a project.

(b) Care should be exercised in the placing of porches so as not to unduly reduce the amount of natural lighting in rooms off of porches.

6. VESTIBULES

(a) Considered desirable on ground floor leading into stair hall.

(b) No announcer bells required except for apartments with separate entrance stairways.

(c) Mail boxes installed in vestibules; architects should consult with Post Office Department for arrangement of mail boxes and secure official approval of the site plan for mail deliveries and house numbers.

7. STAIRS AND STAIR HALLS

(*a*) Walls of apartment bouses to be built of hard, washable, glazed tile, except for special conditions.

(*b*) Incinerators, rather than dumbwaiters, in all apartment-house structures over two stories in height.

(*c*) Steep stairs to be avoided.

(*d*) Stair landings to be broad and triangular turns or winders to be avoided.

(*e*) Handrails on both sides provided througbout.

(*f*) All stairways to be adequately ligbted.

8. STORAGE SPACE

(*a*) In apartment bouses storage space to be provided for each unit—one method of putting basements to good use.

(*b*) In row bouses and flats storage space may be either in basement (group or individual) or in superstructure utility room.

9. CLOSETS

(*a*) Standard formula to determine number of closets: For each dwelling unit one coat closet (preferably in entry or vestibule), one linen closet, and at least one for eacb bedroom.

(*b*) Minimum depth 1 foot 10 inches.

(*c*) Use of doors on closets depends on individual project.

(*d*) Closets to be kept away from exterior walls in all cases—this is done to conserve ligbt area.

(*e*) No cutting into rooms witb closets.

10. WINDOW AREA

(*a*) To be at least one-tentb of floor area and not less than 12 square feet.

(*b*) Minimum bathroom windows 1 foot 8 inches by 3 feet.

(*c*) Windows to run up close to ceiling so tbat ligbt penetrates deeply into rooms.

11. STORY HEIGHTS

(*a*) Except as required otherwise by local ordinances, story heights to be 9 feet from finisbed floor to finished floor.

(*b*) No room to have less than 8 feet 6 inches from finished floor to finished underside of ceiling slab, except basements, which may be 8 feet.

12. MISCELLANEOUS

(*a*) At least one chamber in each dwelling unit to be designed for twin beds.

(*b*) Essential to eliminate whole beams in ceilings of all important rooms.

(*c*) No compulsory passing through living rooms except in special cases.

In addition to the above, due consideration should be given to the fact that an economy in plan layout must be accomplished without the loss of any desirable features, and at the same time allowing for a certain amount of flexibility. After a minimum schedule of room sizes has been adopted, it will be found that in most cases the efficiency of a unit will be better satisfied through a proper sequence and arrangement of rooms rather than by simply increasing the room dimensions. A well-designed kitchen or bathroom with properly arranged fixtures and equipment is more useful than a larger room in which little or no thought has been given to room layout. Applied to living rooms and bedrooms, besides excess original construction cost, too much furniture would be needed by the tenant in projects where those rooms are made excessively large.

Other factors, such as the proper use and layout of basement (if one is to be built), the most efficient type of construction to be used and many others are so much of a local problem that they should be handled individually, and therefore no attempt has been made to adopt standards for them.

It should be noted that the minimum desirable sizes shown in the sample plans might be increased efficiently and would add to the desirability of the plan from the renting standpoint, as these plans were conceived to cover minimum requirements only, in practically every case. However, it should be observed that no plans can possibly be decreased without seriously affecting rentability. On the contrary, great improvements may be obtained by increasing either or both dimensions by 1 or 2 feet. This should result in fewer vacancies as tbe initial construction cost is but slightly increased, with a correspondingly small difference in maintenance costs existing between the minimum size plan and one tbat has been increased by about 10 percent.

· GLOSSARY OF TERMS ·

Administrative Operating Expense.—Salaries and rental commissions, office expense, professional service, legal service and expense, miscellaneous operating expense, and miscellaneous administrative expense.

Annual Charges.—The sum of the following: Capital (fixed) charges, administrative operating expense, general operations expense, maintenance expense, taxes, and insurance.

Average Gross Floor Area Per Room.—The gross floor area divided by the number of rooms (rooms to be counted only as per room definition).

Average Gross Rentable Area Per Dwelling Unit.—Gross rentable area divided by the number of dwelling units.

Average Gross Rentable Area Per Room.—Gross rentable area divided by the number of rooms.

Average Usable Floor Area Per Room.—Usable floor area, divided by the number of rooms (rooms to be counted only as per room definition).

Blighted Area.—An area that has become a social and an economic liability to the community. A general term that is broader than the term "slum" and does not necessarily limit its scope to dwelling areas.

Building Cost.—The total cost of excavation, materials of construction, labor, equipment, architect's fee, and builder's overhead and profit (in connection with housing projects includes utilities, landscaping, roads, curbs, and sidewalks within gross site area).

Building Coverage.—The ratio of the ground area of a building to the net site area; expressed as a percentage.

Building Coverage of Gross Site Area.—The ratio of the ground area of a building to the gross site area, expressed as a percentage.

Building Unit.—A structural division of any building, the access to the living portions of which is independent of any other part of the building. May be built alone as a separate building.

Capital Charges (Fixed Charges).—The sum of the following: Interest on mortgages and equity, amortization, depreciation, and dividends.

Capital Cost.—The sum of all costs in the production of a project, up to the time of completion and ready for occupancy. This is to be listed under the following heads: Land, buildings, professional fees, carrying charges during construction, operating capital, and financing charges and contingencies.

Capital Expenditures.—Non-recurrent major replacements, repairs and improvements, or other major expenses.

Carrying Costs During Construction.—The sum of the following: Municipal service charge, insurance, and interest on mortgages and equity.

Cubage.—The cubic content (cube or cubage) of a building is the actual cubic volume enclosed within the outer surfaces of the outside or enclosing walls and contained between the outer surfaces of the room and 6 inches below the finished surfaces of the lowest floors and under the finished roof surface. Porches and balconies are figured at one-half of their cubic contents.

Dwelling Unit.—Any room, or group of rooms, designed as the living quarters of one family or household, and equipped with cooking and toilet facilities, and having an independent entrance to a public hall, or one directly to the outside. Sometimes referred to as suite or apartment.

General Operations Expense.—The sum of the following: Janitorial service, upkeep of grounds, boiler room and power expense, fuel, electric energy, gas, water, jobbing to tenants, and community facilities expense.

Gross Floor Area.—Total area of an entire floor of any building of building unit measured from the outside of the exterior walls.

Gross Rentable Area.—Gross floor area less all public spaces (i. e., public halls and stairs and all closets, incinerators, etc., opening therefrom), including the walls enclosing them.

·Typical Unit Plans·

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APARTMENTS

Off-Center Column Types

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16	3—3—3 (A)	Tee (end unit).	28	3s—2s—3s	Ribbon.
17	3—3s—3	Tee.	29	4—4 (C)	Ribbon.
18	4—3—4	Tee.	30	4—4 (B)	Ribbon.
19	5—3—5	Tee.	31	5—5	Ribbon.
20	3—4—3	Tee.	32	4—4	Ribbon (balcony).
21	4—4—4	Tee.	33	3—3—3	Tee (balcony).
22	5—4—5	Tee.	34	4—4	Ribbon (balcony).
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On-Center Column Types

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43	5	Ribbon.	68	3	Ribbon.
64	3	Ribbon.	69	2	Ribbon.

COMBINATION FLAT AND ROW HOUSES

44	3 and 4, 3 story	Ribbon.	—	— — — —	— — — —

EXPLANATORY NOTES
IN CONNECTION WITH TYPICAL UNIT PLANS

KITCHENS

All kitchens allow space for eating.

Kitchen equipment is presented in block form only.

K. S. on plan means "kitchen strip."

UTILITY ROOMS

May be used as dining alcoves, storage rooms, heating rooms, or by eliminating same, kitchens may be made larger.

BATH ROOMS

Layouts have been standardized as much as possible.

DOORS

Presence of doors in plans does not indicate their necessity—should be settled individually on each job.

Door schedule symbols as used on plans refer to the following sizes:

A = 2 feet 10 inches.
B = 2 feet 6 inches.
C = 2 feet 4 inches.
D = 2 feet.
E = 1 foot 4 inches.

WINDOWS

Sizes and spacing shown on plans are merely suggestive and must be studied in conjunction with exterior elevations.

FURNITURE

Placing of furniture has been studied for each room.

STATISTICS

All figures quoted are for one floor only, unless stated otherwise.

Occupancy figure based on definition in Glossary of Terms.

Interior partition figures do not include any stair hall partitions.

Percentage of efficiency figure is something of a guide—ordinarily should be over 60 percent.

Amount of interior partitions per room is only an incidental quantity.

Stairs and incinerator per room is determined by taking the total number of rooms served by one vertical unit per floor divided into one unit.

Symbols for arrangement of plumbing stacks describes the number of fixture groups fed by one line; e. g., 1 B/K means that one bathroom and one kitchen are both served by one common stack.

End walls not used in any computations unless definitely stated.

DIMENSIONS

All room dimensions given are net.

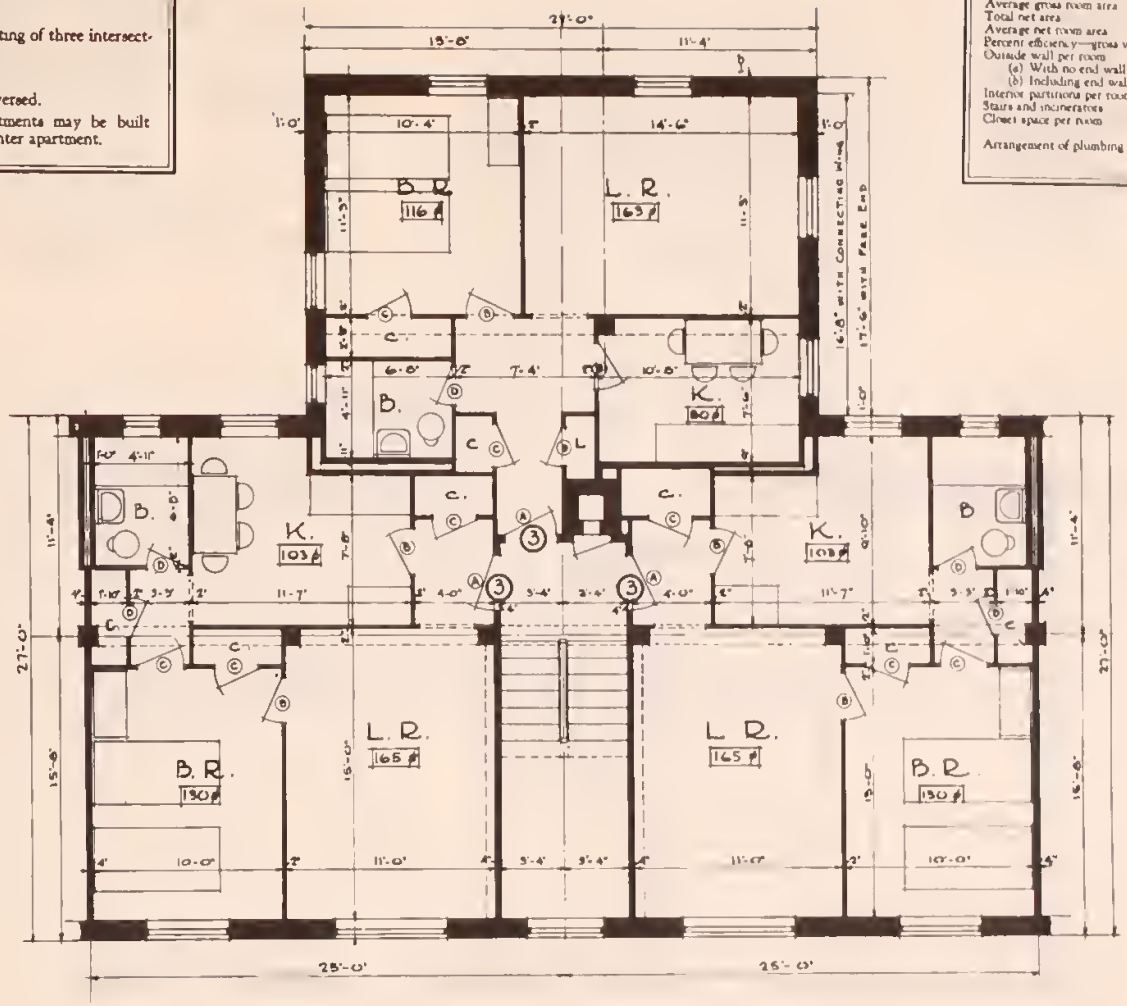
These plans were studied for minimum requirements and dimensions should be increased if local conditions will warrant same.

REMARKS

1. Title: 3—3—3 room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as point of meeting of three intersecting ribbon units.
4. General:
   (a) Center apartment may be reversed.
   (b) Penthouse and garden apartments may be built directly over and under center apartment.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	9
Total occupancy	Persons	9
Total gross area	Square feet	1,800
Average gross room area	Square feet	200
Total net area	Square feet	1,155
Average net room area	Square feet	128
Percent efficiency—gross vs. net area	Percent	64.2
Outside wall per room		
(a) With no end wall	Lineal feet	12 feet
(b) Including end wall	Lineal feet	15 feet
Interior partitions per room	Lineal feet	34 feet
Stairs and incinerators	Number per room	1/9
Closet space per room	Lineal feet	4 feet 7 inches
Arrangement of plumbing stacks	Number	1 K/K 1 B/K 2 B



UNIT 3 – 3 – 3

0 1 2 3 4 5 10

SCALE IN FEET

UNITED STATES
FEDERAL EMERGENCY ADMINISTRATION
OF PUBLIC WORKS

HAROLD L. ICKES - ADMINISTRATOR

HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING

JANUARY 30, 1935

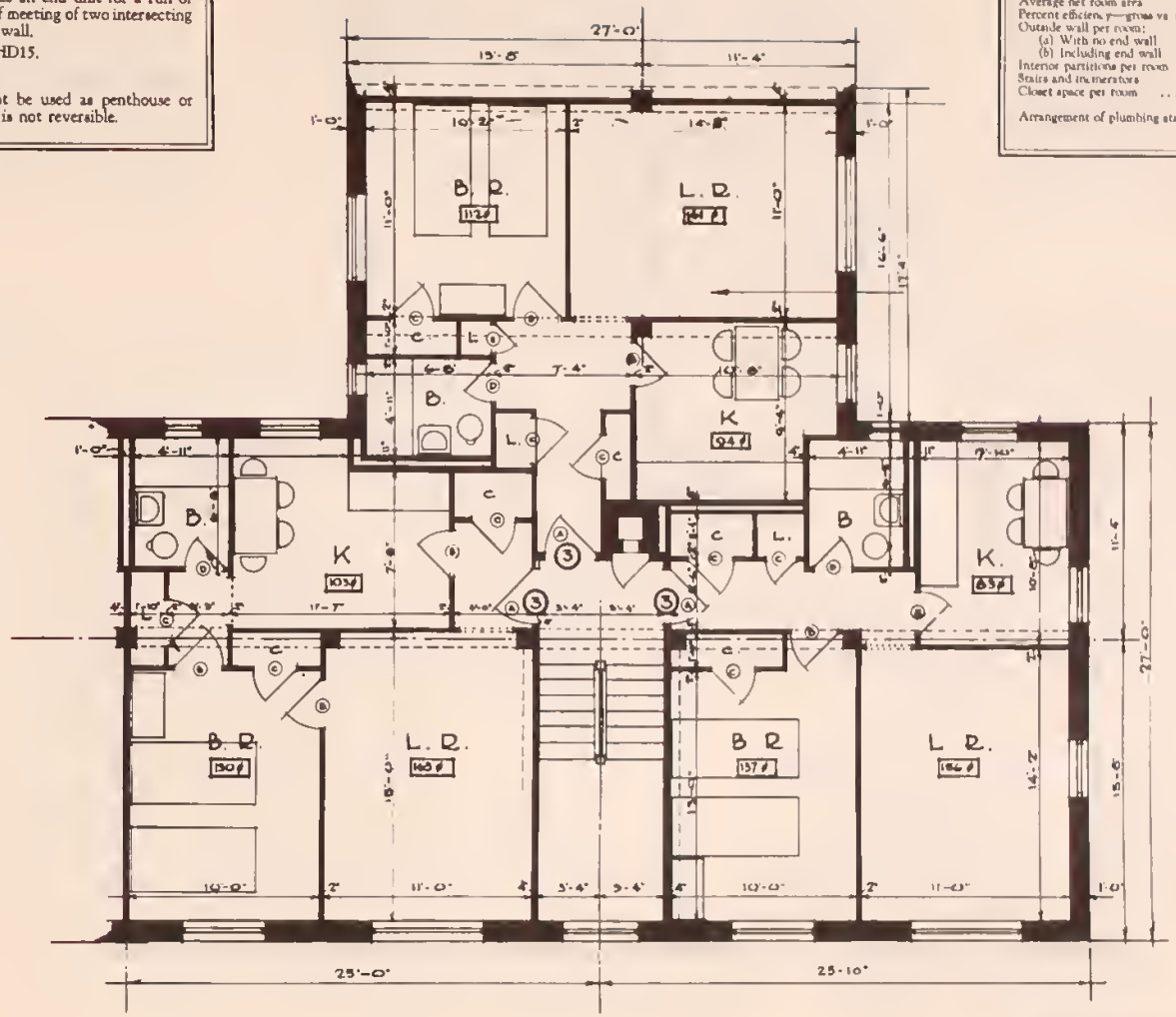
PLAN NUMBER
HD-15

REMARKS

1. Title: 3—3—3 (A) room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) This plan may be used as an end unit for a run of T-plans or as a point of meeting of two intersecting ribbon units with end wall.
   (e) Note similarity to Plan HD15.
4. General:
   (a) Center apartment cannot be used as penthouse or garden apartment and is not reversible.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	9
Total occupancy	Persons	9
Total gross area	Square feet	1,800
Average gross room area	Square feet	200
Total net area	Square feet	1,141
Average net room area	Square feet	127
Percent efficiency—gross vs. net area	Percent	63.4
Outside wall per room:		
(a) With no end wall	Lineal feet	11 feet 11 inches
(b) Including end wall	Lineal feet	15 feet
Interior partitions per room	Lineal feet	33 feet 3 inches
Stairs and incinerators	Number per room	1/9
Closet space per room	Lineal feet	4 feet 10 inches
Arrangement of plumbing stacks	Number	2 K/B 1 B 1 K



UNIT 3 – 3 – 3 (A)

0 1 2 3 4 5 10

SCALE IN FEET

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JANUARY 30, 1935

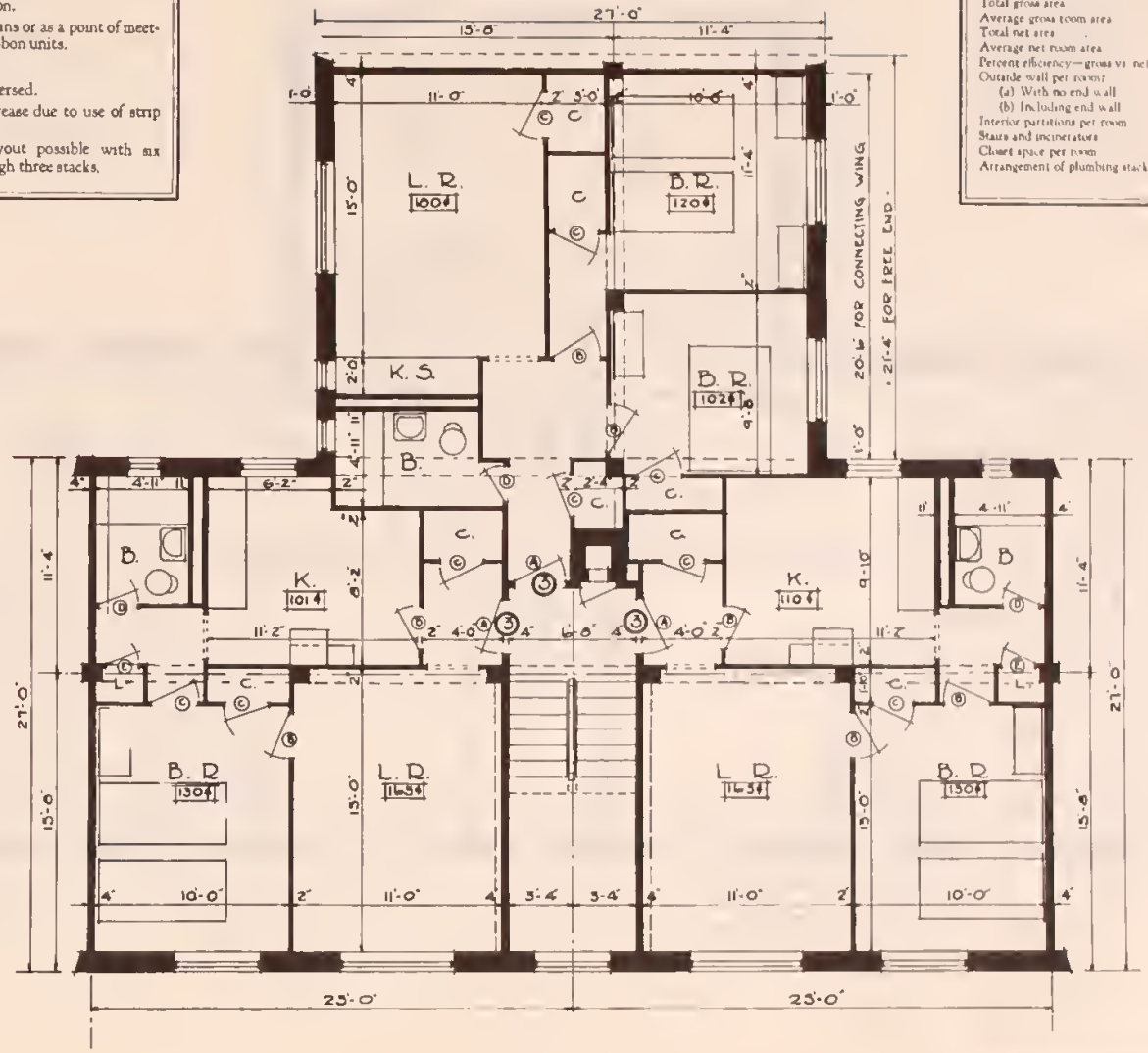
PLAN NUMBER
HD-16

REMARKS

1. Title: 3—3s—3 room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan with one strip kitchen and two complete kitchens.
   (b) Off-center column construction.
   (c) May be used as a run of T-plans or as a point of meeting of three intersecting ribbon units.
4. General:
   (a) Center apartment may be reversed.
   (b) Average room area figure increase due to use of strip kitchen.
   (c) Most efficient plumbing layout possible with six groups of fixtures fed through three stacks.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	9
Total occupancy	Persons	9
Total gross area	Square feet	1,904
Average gross room area	Square feet	212
Total net area	Square feet	1,203
Average net room area	Square feet	134
Percent efficiency—gross vs. net area	Percent	63.2
Outside wall per room:		
(a) With no end wall	Lineal feet	12 feet 10 inches
(b) Including end wall	Lineal feet	15 feet 10 inches
Interior partitions per room	Lineal feet	36 feet
Stairs and incinerators	Number per room	1/9
Closet space per room	Lineal feet	4 feet 4 inches
Arrangement of plumbing stacks	Number	3 K/B



UNIT 3 – 3s – 3

0 1 2 3 4 5 10

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JANUARY 30, 1935

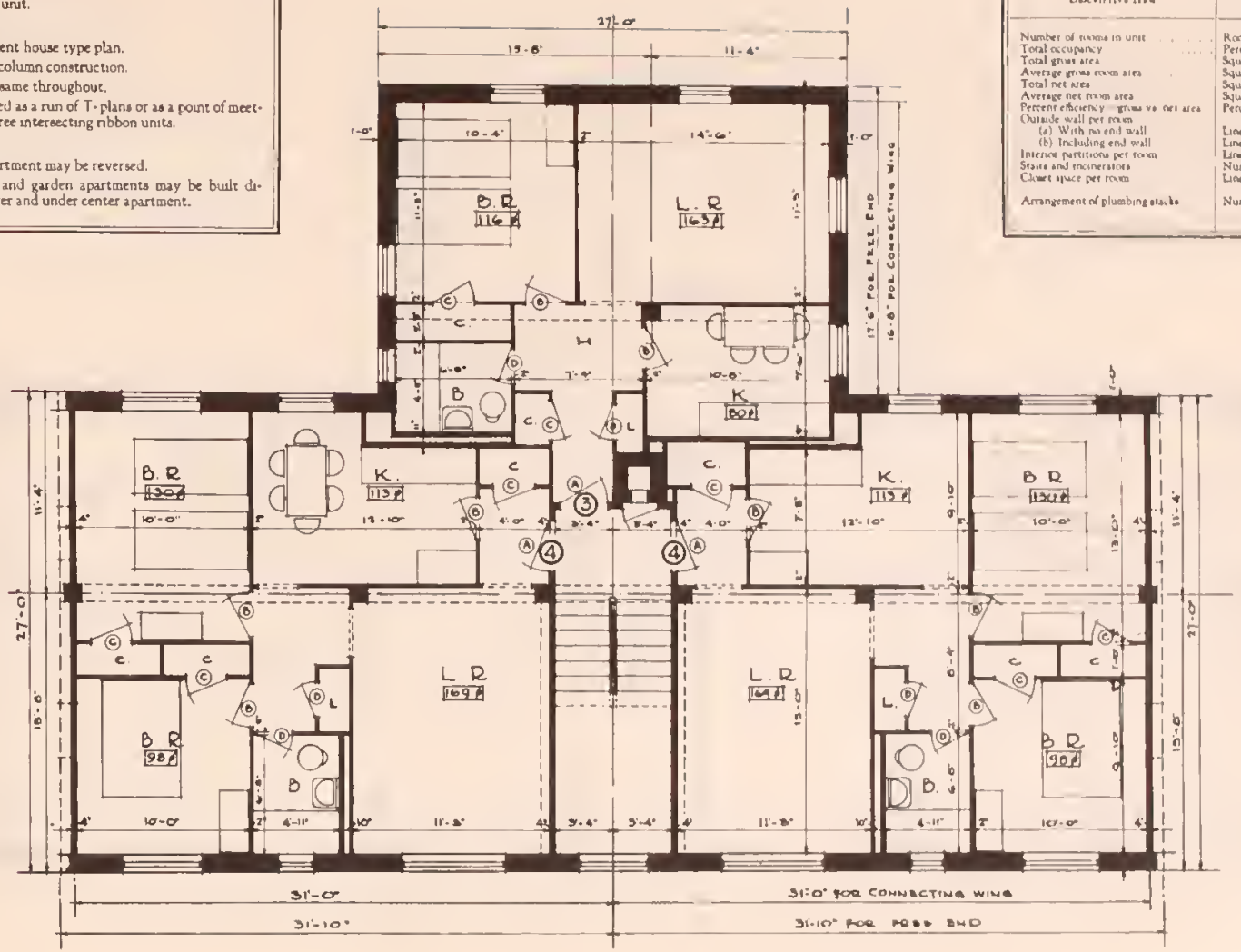
PLAN NUMBER
HD-17

REMARKS

1. Title 4—3—4 room unit.
2. Type of plan: T-unit.
3. Characteristics
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as a run of T-plans or as a point of meeting of three intersecting ribbon units.
4. General:
   (a) Center apartment may be reversed.
   (b) Penthouse and garden apartments may be built directly over and under center apartment.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	11
Total occupancy	Persons	13
Total gross area	Square feet	2,124
Average gross room area	Square feet	191
Total net area	Square feet	1,379
Average net room area	Square feet	125
Percent efficiency—gross vs. net area	Percent	64.9
Outside wall per room		
(a) With no end wall	Lineal feet	12 feet
(b) Including end wall	Lineal feet	14 feet 6 inches
Interior partitions per room	Lineal feet	33 feet 7 inches
Stairs and incinerators	Number per room	1/11
Closet space per room	Lineal feet	4 feet 5 inches
Arrangement of plumbing stacks	Number	2 B 1 K/B 1 K/K



UNIT 4 – 3 – 4

0 1 2 3 4 5 10

SCALE IN FEET

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JANUARY 30, 1935

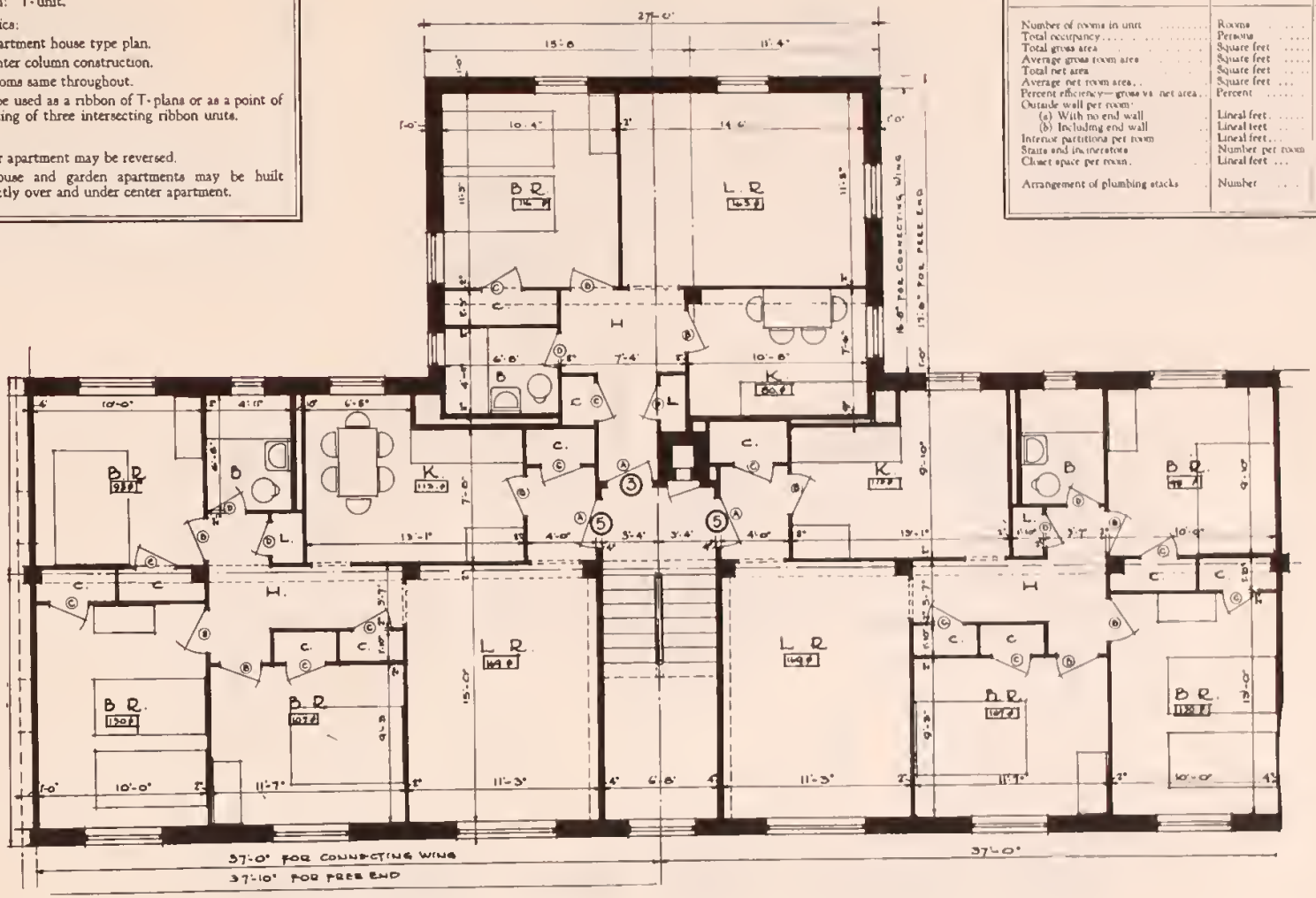
PLAN NUMBER
HD-18

REMARKS

1. Title: 5—3—5 room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as a ribbon of T-plans or as a point of meeting of three intersecting ribbon units.
4. General:
   (a) Center apartment may be reversed.
   (b) Penthouse and garden apartments may be built directly over and under center apartment.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	13
Total occupancy	Persons	17
Total gross area	Square feet	2,448
Average gross room area	Square feet	188
Total net area	Square feet	1,593
Average net room area	Square feet	123
Percent efficiency—gross vs. net area	Percent	65.1
Outside wall per room:		
(a) With no end wall	Lineal feet	12 feet
(b) Including end wall	Lineal feet	14 feet 1 inch
Interior partitions per room	Lineal feet	33 feet 6 inches
Stairs and incinerators	Number per room	1/13
Closet space per room	Lineal feet	4 feet 11 inches
Arrangement of plumbing stacks	Number	1 K/K, 1 B/K, 2 B



UNIT 5 – 3 – 5

0 1 2 3 4 5 10

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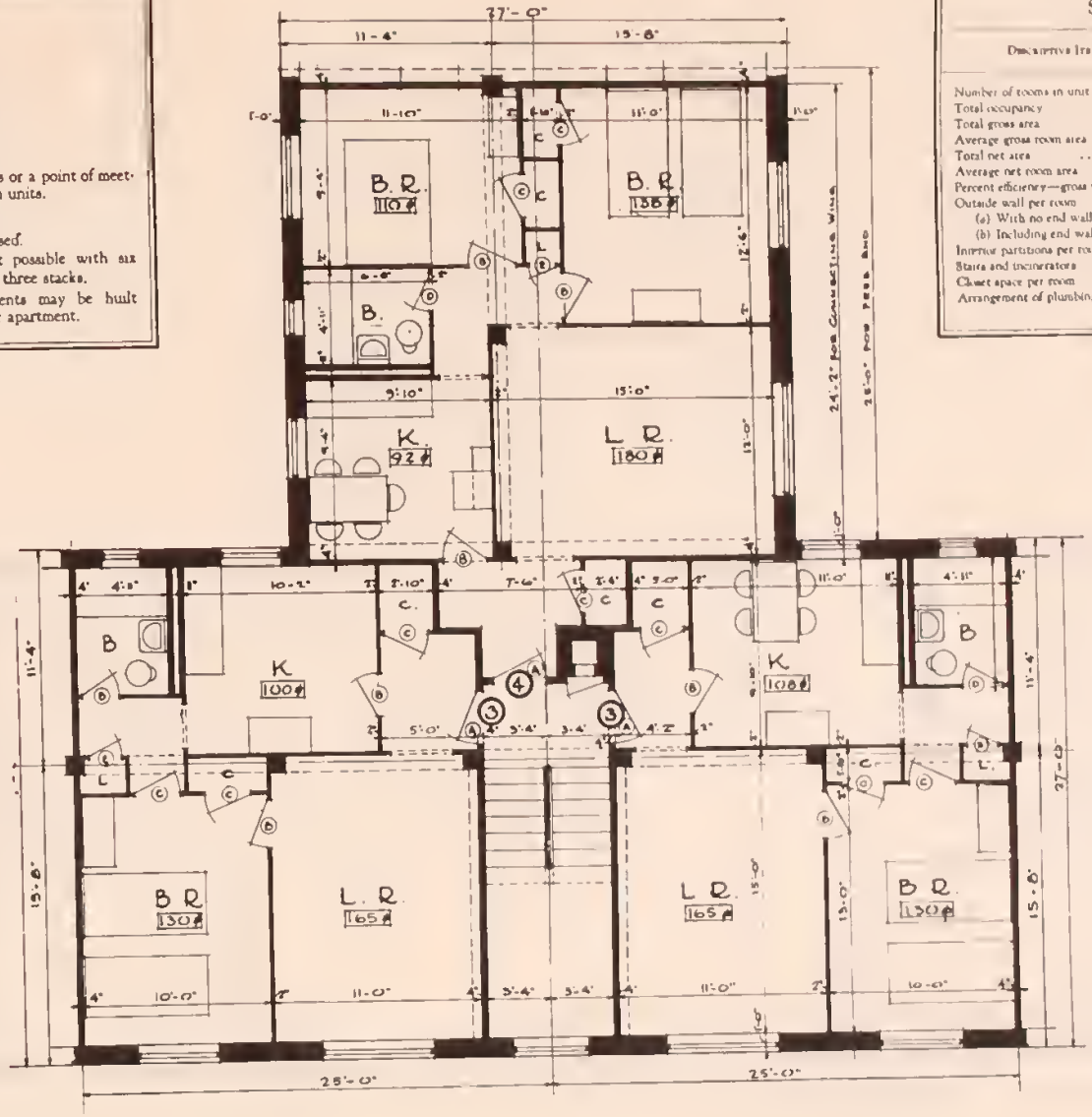
JANUARY 30, 1935

PLAN NUMBER
HD-19

REMARKS

1. Title: 3—4—3 room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as a run of T-plans or a point of meeting of three intersecting ribbon units.
4. General:
   (a) Center apartment may be reversed.
   (b) Most efficient plumbing layout possible with six groups of fixtures fed through three stacks.
   (c) Penthouse and garden apartments may be built directly over and under center apartment.



STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	10
Total occupancy	Persons	11
Total gross area	Square feet	2,002
Average gross room area	Square feet	200
Total net area	Square feet	1,318
Average net room area	Square feet	132
Percent efficiency—gross vs. net area	Percent	65.8
Outside wall per room		
(a) With no end wall	Lineal feet	12 feet 4 inches
(b) Including end wall	Lineal feet	15 feet
Interior partitions per room	Lineal feet	33 feet 2 inches
Stairs and incinerators	Number per room	1/10
Closet space per room	Lineal feet	3 feet 2 inches
Arrangement of plumbing stacks	Number	3 B/K

UNIT 3 – 4 – 3

0 1 2 3 4 5 10

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HOUSING DIVISION
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DIRECTOR OF HOUSING
JANUARY 30, 1935

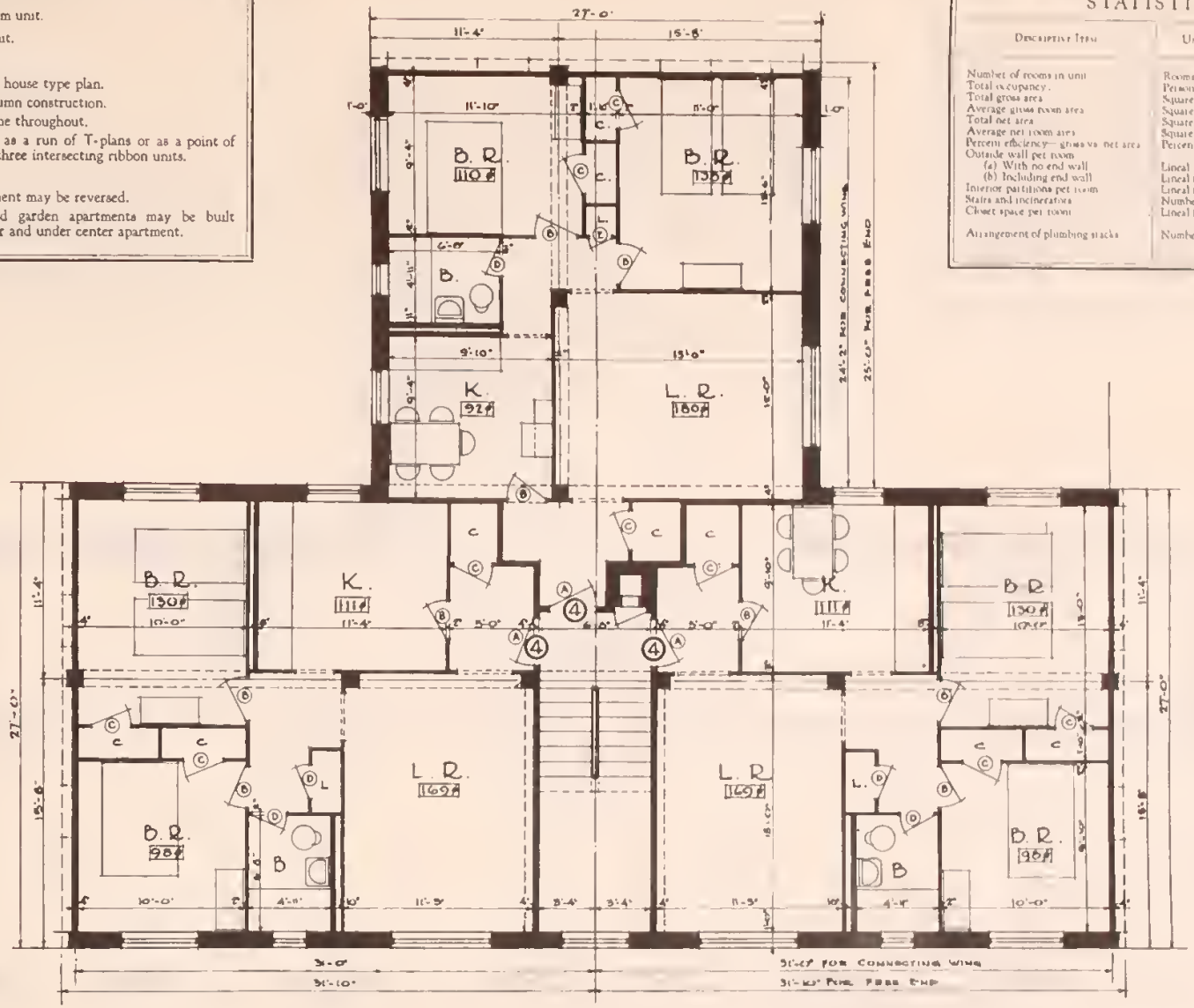
PLAN NUMBER
HD-20

REMARKS

1. Title: 4—4—4 room unit.
2. Type of plan: T-unit.
3. Characteristics:
   - (a) An apartment house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) May be used as a run of T-plans or as a point of meeting of three intersecting ribbon units.
4. General:
   - (a) Center apartment may be reversed.
   - (b) Penthouse and garden apartments may be built directly over and under center apartment.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	12
Total occupancy	Persons	15
Total gross area	Square feet	2,327
Average gross room area	Square feet	194
Total net area	Square feet	1,536
Average net room area	Square feet	128
Percent efficiency—gross vs. net area	Percent	66.1
Outside wall per room		
(a) With no end wall	Lineal feet	12 feet 4 inches
(b) Including end wall	Lineal feet	14 feet 6 inches
Interior partitions per room	Lineal feet	34 feet 4 inches
Stairs and incinerators	Number per room	1/12
Closet space per room	Lineal feet	5 feet 10 inches
Arrangement of plumbing stacks	Number	1 B/K 2 B 2 K



UNIT 4 – 4 – 4

0 1 2 3 4 5 10

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JANUARY 30, 1935

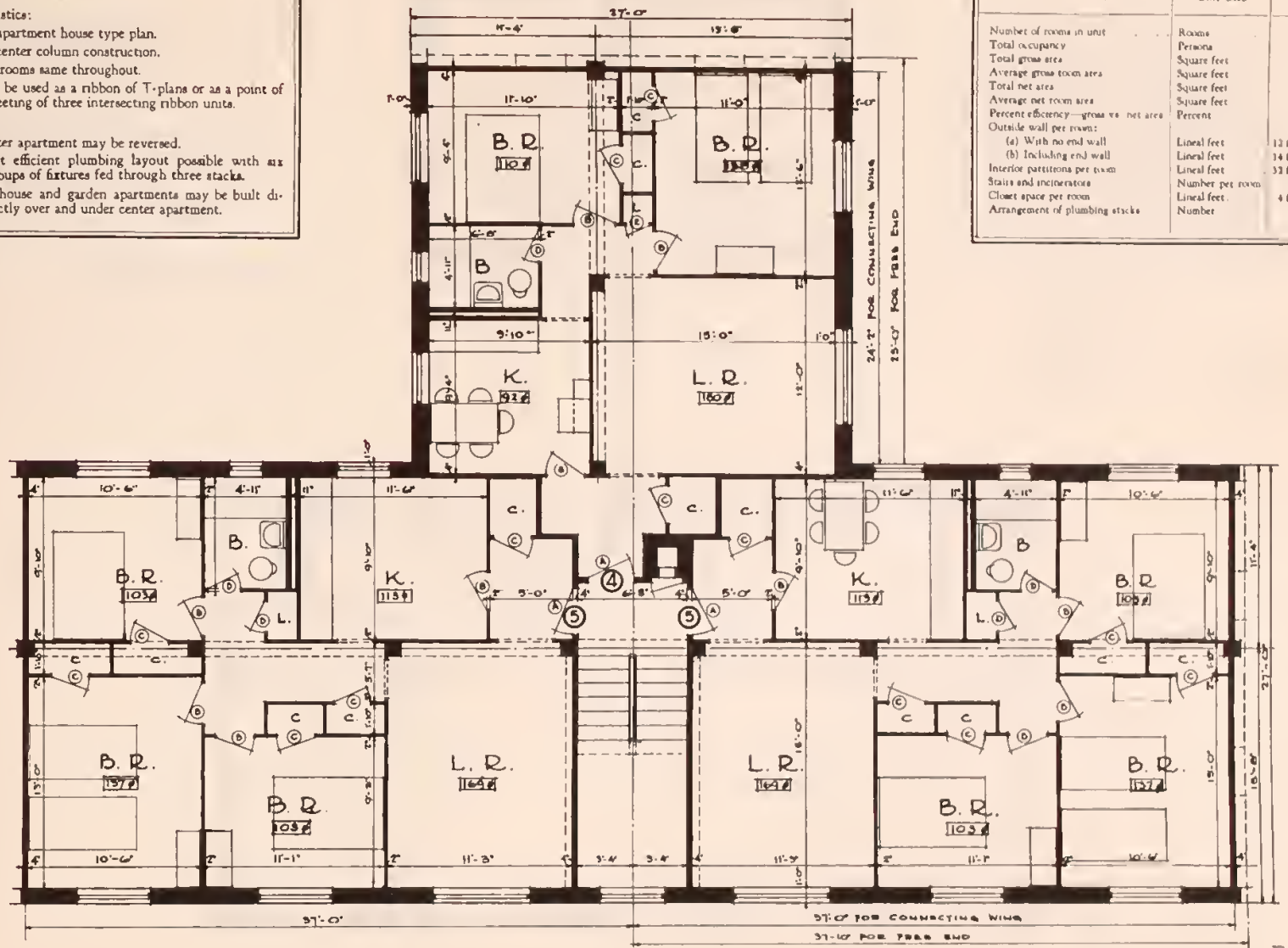
PLAN NUMBER
HD-21

REMARKS

1. Title: 5—4—5 room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as a ribbon of T-plans or as a point of meeting of three intersecting ribbon units.
4. General:
   (a) Center apartment may be reversed.
   (b) Most efficient plumbing layout possible with six groups of fixtures fed through three stacks.
   (c) Penthouse and garden apartments may be built directly over and under center apartment.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	14
Total occupancy	Persons	19
Total gross area	Square feet	2,650
Average gross room area	Square feet	189
Total net area	Square feet	1,770
Average net room area	Square feet	126
Percent efficiency—gross vs. net area	Percent	66.8
Outside wall per room:		
(a) With no end wall	Lineal feet	12 feet 3 inches
(b) Including end wall	Lineal feet	14 feet 2 inches
Interior partitions per room	Lineal feet	32 feet 2 inches
Stairs and incinerators	Number per room	1/14
Closet space per room	Lineal feet	4 feet 5 inches
Arrangement of plumbing stacks	Number	3 B/K



75,964

UNIT 5 – 4 – 5

0 1 2 3 4 5 10

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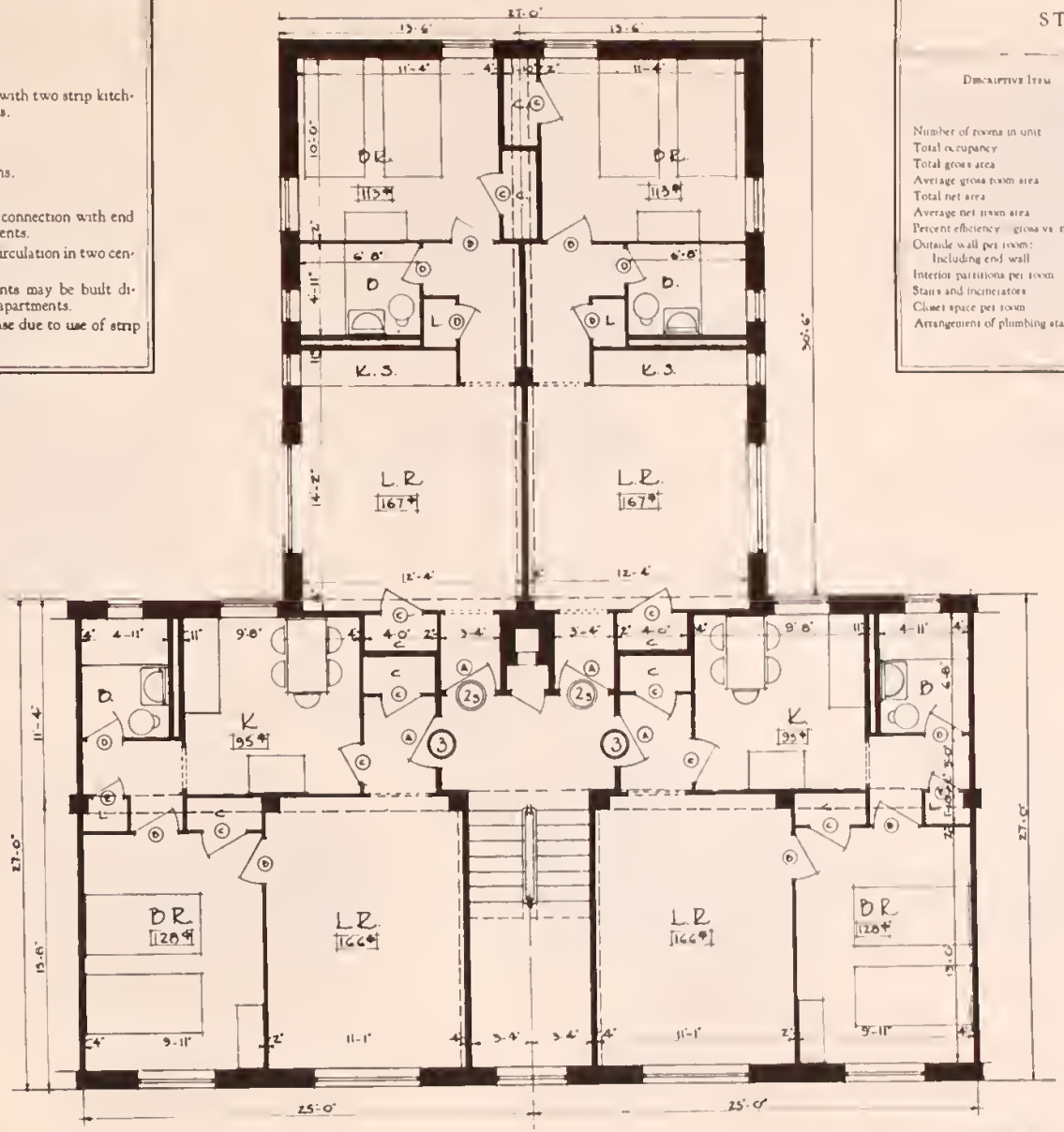
JANUARY 30, 1935

PLAN NUMBER
HD-22

REMARKS

1. Title: 3—2s—2s—3 room unit.
2. Type of plan: T-unit.
3. Characteristics:
   - (a) An apartment house type plan with two strip kitchens and two complete kitchens.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) May be used as a run of T-plans.
4. General:
   - (a) This plan is to be used only in connection with end wall applied to center apartments.
   - (b) Note the absence of privacy of circulation in two center apartments.
   - (c) Penthouse and garden apartments may be built directly over and under center apartments.
   - (d) Average room area figure increase due to use of strip kitchens.



STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	10
Total occupancy	Persons	12
Total gross area	Square feet	2,149
Average gross room area	Square feet	215
Total net area	Square feet	1,338
Average net room area	Square feet	134
Percent efficiency (gross vs. net area)	Percent	62.3
Outside wall per room: Including end wall	Lineal feet	15 feet 4 inches
Interior partitions per room	Lineal feet	36 feet 8 inches
Stairs and incinerators	Number per room	1/10
Closet space per room	Lineal feet	4 feet 3 inches
Arrangement of plumbing stacks	Number	4 B/K

UNIT 3 – 2s – 2s – 3

0 1 2 3 4 5 10

SCALE IN FEET

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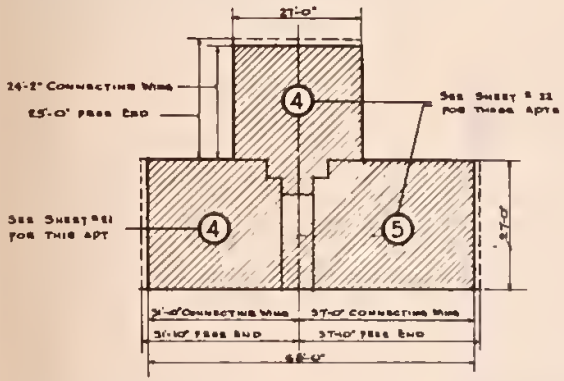
HORATIO B. HACKETT
DIRECTOR OF HOUSING

JANUARY 30, 1935

PLAN NUMBER
HD-23

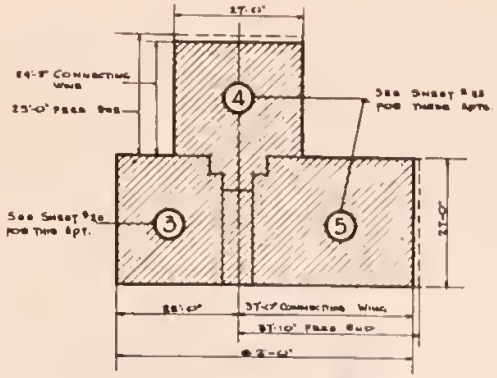
REMARKS

1. Title: Variations of T-plans, including 4—4—5, 3—4—5, 3—4—4, 4—3—5, 3—3—5, and 3—3—4 room units (see sheets HD15 to HD21, inclusive).
2. Type of plans: All T-units.
3. Characteristics:
   (a) Apartment house type plans.
   (b) Off-center column construction throughout.
   (c) May be used as run of T-plans or as points of meeting of three intersecting ribbon units.
4. General:
   (a) General characteristics of individual apartments remain constant for various combinations.



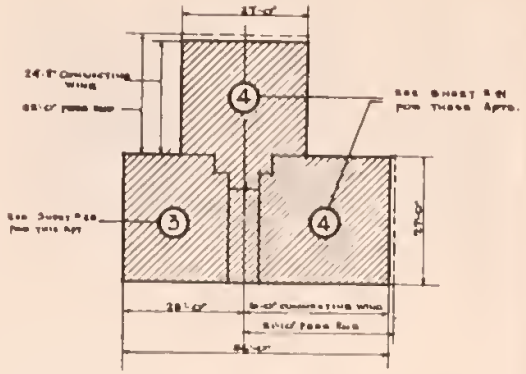
- UNIT - 4-4-5 -

TOTAL GROSS AREA PER UNIT = 2488 SQ FT
AVERAGE GROSS AREA PER RM = 191 SQ FT



- UNIT - 3-4-5 -

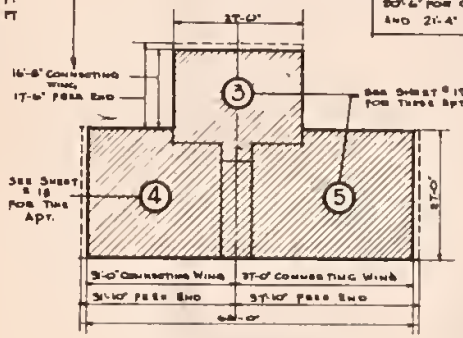
TOTAL GROSS AREA PER UNIT = 2316 SQ FT
AVERAGE GROSS AREA PER RM = 198 SQ FT



- UNIT 3-4-4 -

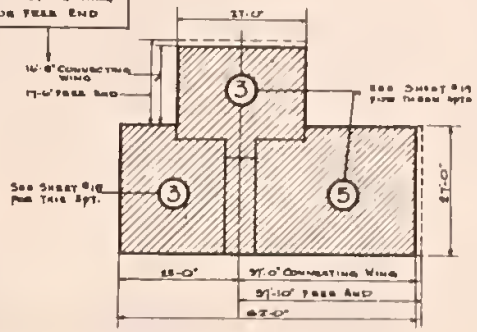
TOTAL GROSS AREA PER UNIT = 2164 SQ FT
AVERAGE GROSS AREA PER RM = 197 SQ FT

WHEN ALTERNATE BACK APT AS SHOWN ON SHEET # 17 IS USED, THESE DIMENSIONS BECOME 25'-6" FOR CONNECTING WING AND 21'-4" FOR FREE END



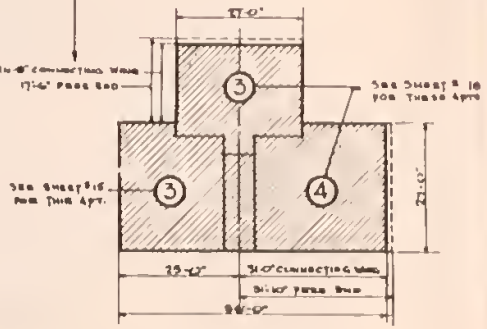
- UNIT - 4-3-5 -

TOTAL GROSS AREA PER UNIT = 2286 SQ FT
AVERAGE GROSS AREA PER RM = 190 SQ FT



- UNIT - 3-3-5 -

TOTAL GROSS AREA PER UNIT = 2174 SQ FT
AVERAGE GROSS AREA PER RM = 193 SQ FT



- UNIT - 3-3-4 -

TOTAL GROSS AREA PER UNIT = [illegible] SQ FT
AVERAGE GROSS AREA PER RM = 186 SQ FT

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JANUARY 30, 1935

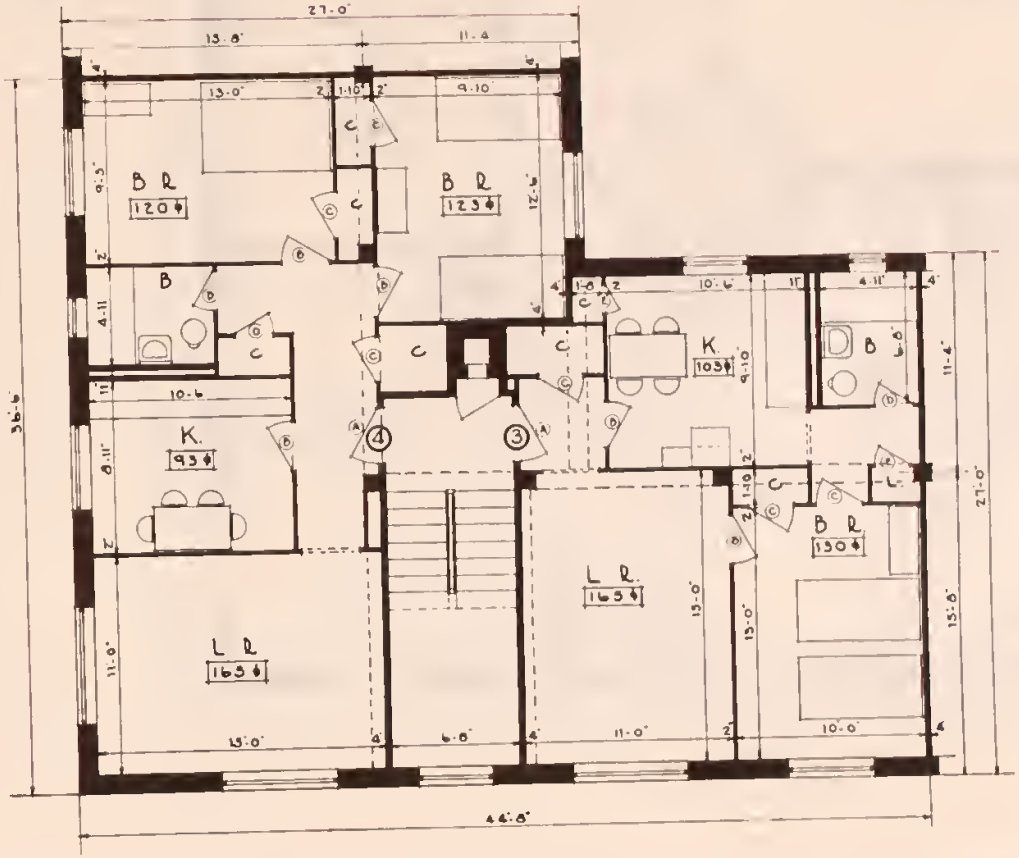
PLAN NUMBER
HD-24

REMARKS

1. Title: 4—3 room unit.
2. Type of plan Corner unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a corner for joining of other plan types
4. General:
   (a) Not a very efficient unit because one stair and incinerator serves only two apartments per floor.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	7
Total occupancy	Persons	8
Total gross area	Square feet	1,462
Average gross room area	Square feet	209
Total net area	Square feet	899
Average net room area	Square feet	128
Percent efficiency—gross vs. net area	Percent	61.5
Outside wall per room: With no end wall	Lineal feet	15 feet 7 inches
Interior partitions per room	Lineal feet	31 feet 4 inches
Stairs and incinerators	Number per room	1/7
Closet space per room	Lineal feet	4 feet
Arrangement of plumbing stacks	Number	2 B/K



UNIT 4 – 3

0 1 2 3 4 5 10

SCALE IN FEET

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JANUARY 30, 1935

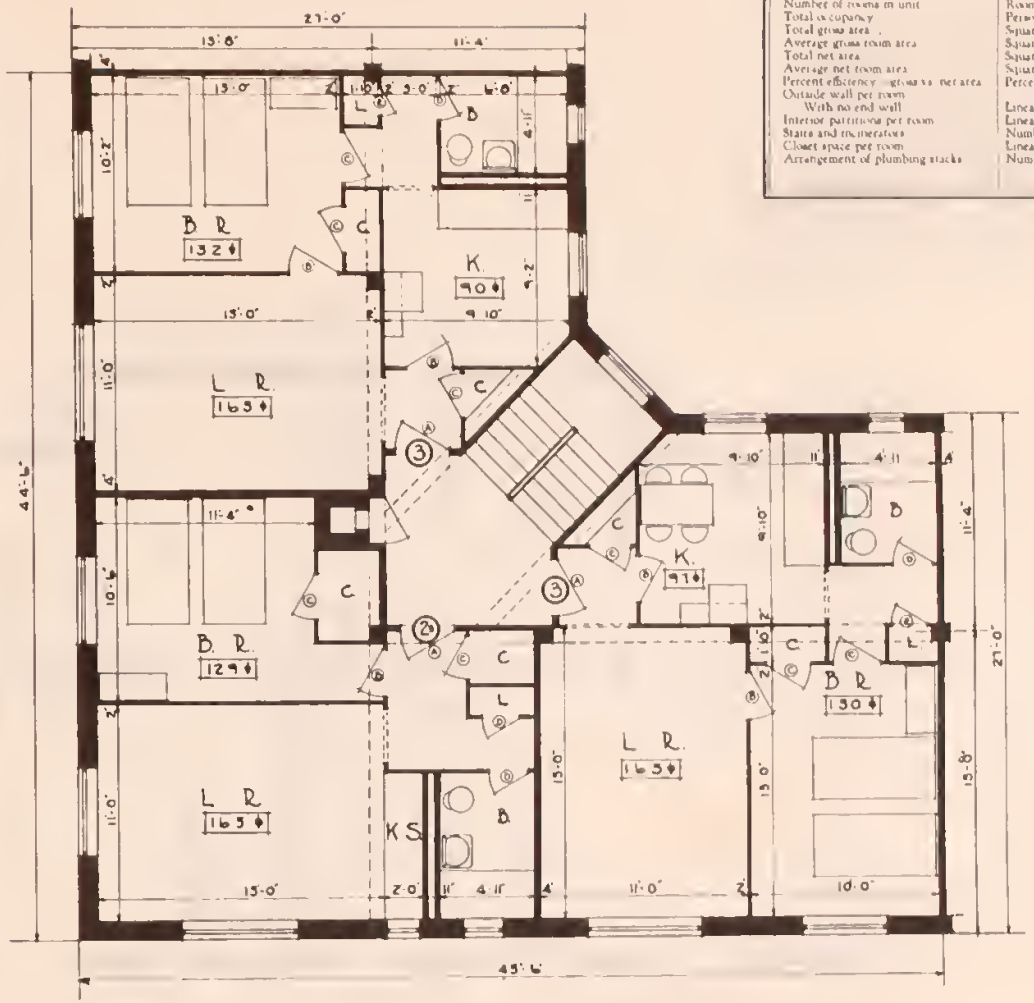
PLAN NUMBER
HD-25

REMARKS

1. Title 3—2s—3 room unit.
2. Type of plan Corner unit
3. Characteristics
   (a) An apartment house type plan with one strip kitchen and two complete kitchens
   (b) Off-center column construction.
   (c) Bathrooms same throughout
   (d) Used as a corner for joining of other plan types
4. General:
   (a) Average room area figure increase due to existence of strip kitchen.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy	Persons	9
Total gross area	Square feet	1,711
Average gross room area	Square feet	214
Total net area	Square feet	1,073
Average net room area	Square feet	134
Percent efficiency (gross vs. net area	Percent	62.7
Outside wall per room		
With no end wall	Lineal feet	13 feet 4 inches
Interior partitions per room	Lineal feet	33 feet 3 inches
Stairs and incinerators	Number per room	1/8
Closet space per room	Lineal feet	3 feet 6 inches
Arrangement of plumbing stacks	Number	3 B/K



UNIT 3 – 2s – 3

0 1 2 3 4 5 10

SCALE IN FEET

UNITED STATES
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HAROLD L. ICKES · ADMINISTRATOR

HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

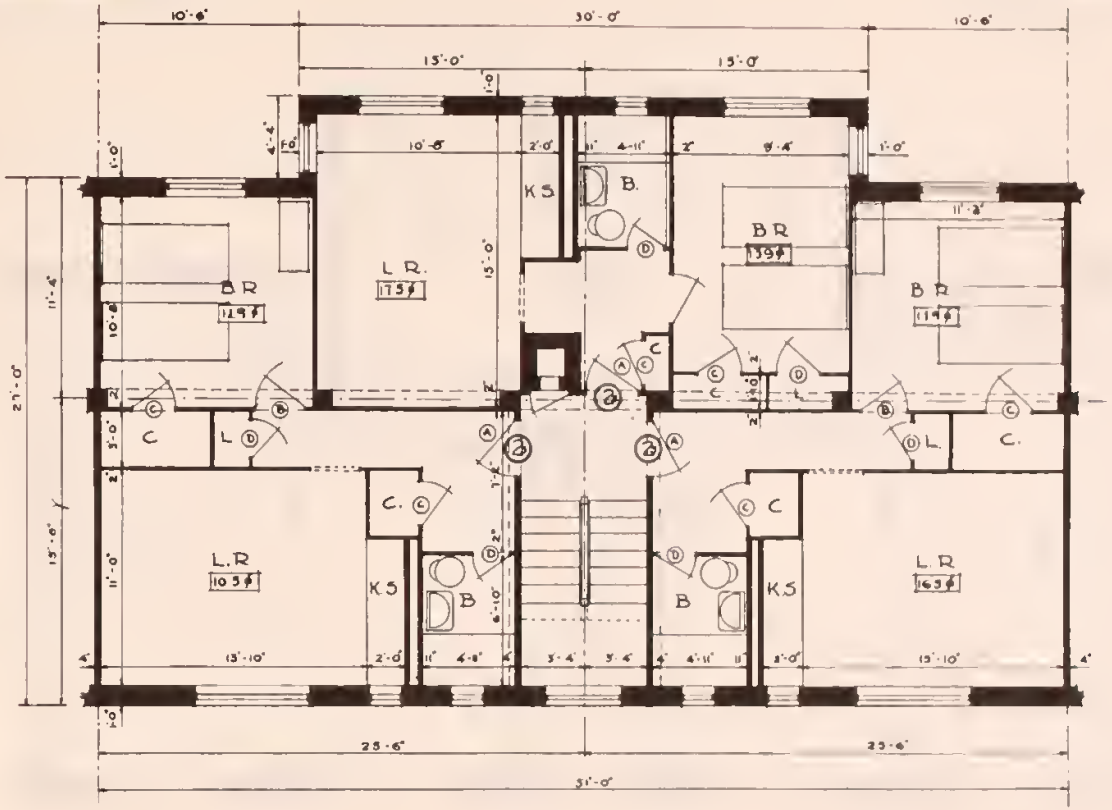
PLAN NUMBER
HD-26

REMARKS

1. Title: 2s—2s—2s room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan with strip kitchens throughout.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon.
4. General:
   (a) Average room area increase due to the use of strip kitchens.
   (b) Penthouse and garden apartments may be built directly over and under center apartment.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	6
Total occupancy	Persons	9
Total gross area	Square feet	1,507
Average gross room area	Square feet	251
Total net area	Square feet	882
Average net room area	Square feet	147
Percent efficiency—gross vs. net area	Percent	58.5
Outside wall per room:		
With no end wall	Lineal feet	18 feet 9 inches
Interior partitions per room	Lineal feet	41 feet 4 inches
Stairs and incinerators	Number per room	1/6
Closet space per room	Lineal feet	6 feet
Arrangement of plumbing stacks	Number	3 B/K



UNIT 2s – 2s – 2s

0 1 2 3 4 5 10

SCALE IN FEET

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HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

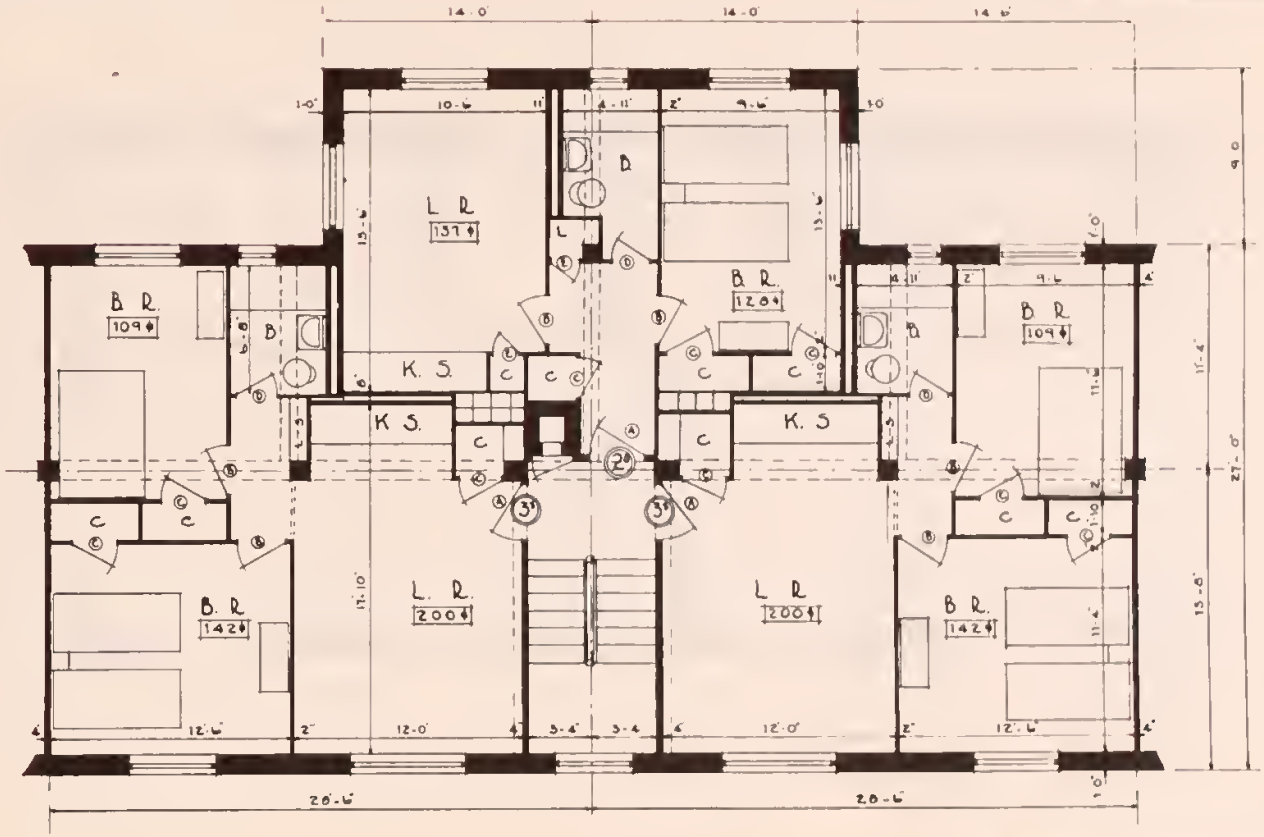
PLAN NUMBER
HD-27

REMARKS

1. Title: 3s—2s—3s room unit.
2. Type of plan: T-unit.
3. Characteristics
   (a) An apartment house type plan with strip kitchens throughout.
   (b) Off-center column construction.
   (c) Used as a ribbon.
4. General:
   (a) Compulsory passing through living rooms in left and right apartments.
   (b) No entry in left and right apartments.
   (c) Average room area increase due to the use of strip kitchens.
   (d) Penthouse and garden apartments may be built directly over and under center apartment.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy	Persons	13
Total gross area	Square feet	1,791
Average gross room area	Square feet	224
Total net area	Square feet	1,187
Average net room area	Square feet	149
Percent efficiency gross vs. net area	Percent	66.3
Outside wall per room:		
With no end wall	Lineal feet	16 feet 6 inches
Interior partitions per room	Lineal feet	16 feet 5 inches
Stairs and incinerators	Number per room	1/8
Closet space per room	Lineal feet	5 feet 2 inches
Arrangement of plumbing stacks	Number	3 B 1 K 1 K/K



UNIT 3s – 2s – 3s

0 1 2 3 4 5 10

SCALE IN FEET

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JANUARY 30, 1935

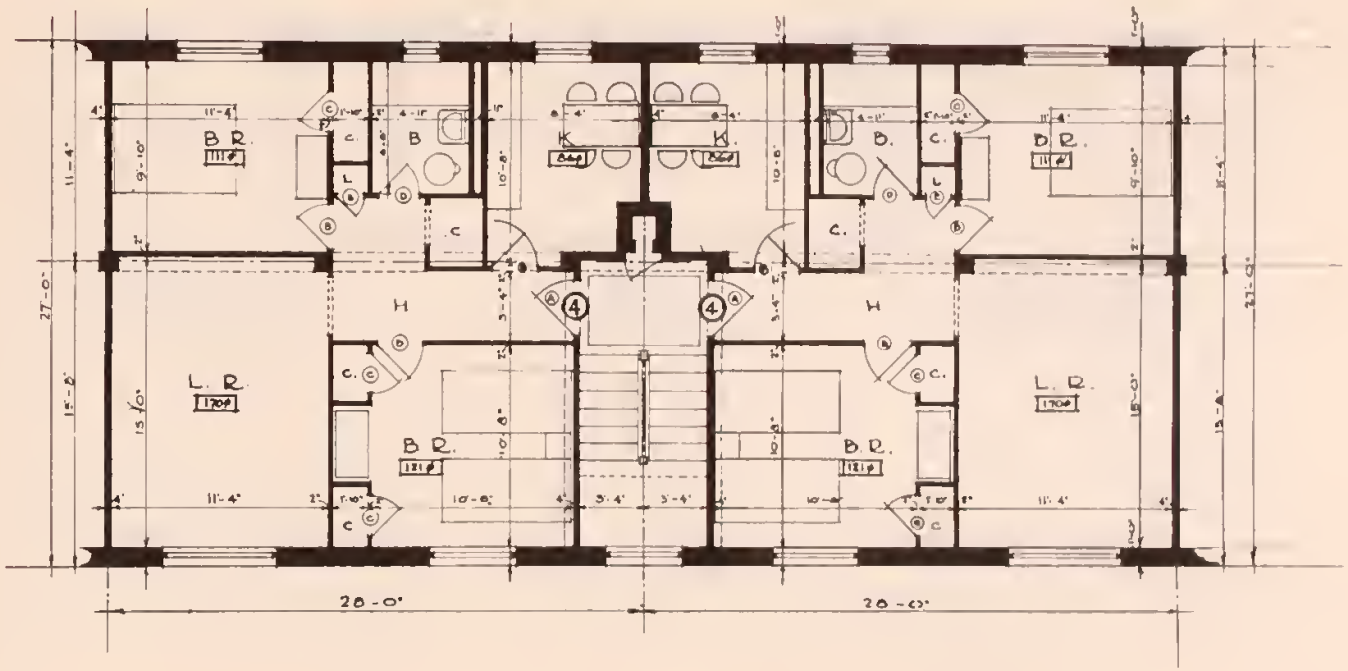
PLAN NUMBER
HD-28

REMARKS

1. Title: 4—4 (c) room unit.
2. Type of plan: Ribbon unit.
3. Characteristics:
   - (a) An apartment house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a ribbon.
4. General:
   - (a) Not as efficient as T-units because one stair and incinerator serves only two apartments per floor, useful however as a connecting and "spreader" unit for T and cross types.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy	Persons	10
Total gross area	Square feet	1,512
Average gross room area	Square feet	189
Total net area	Square feet	986
Average net room area	Square feet	123
Percent efficiency gross vs net area	Percent	65.2
Outside wall per room. With no end wall	Lineal feet	14 feet
Interior partitions per room	Lineal feet	30 feet 5 inches
Stairs and incinerators	Number per room	1/8
Closet space per room.	Lineal feet	4 feet 4 inches
Arrangement of plumbing stacks	Number	2 B/K



UNIT 4 – 4 (c)

0 1 2 3 4 5 10

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JANUARY 30, 1935

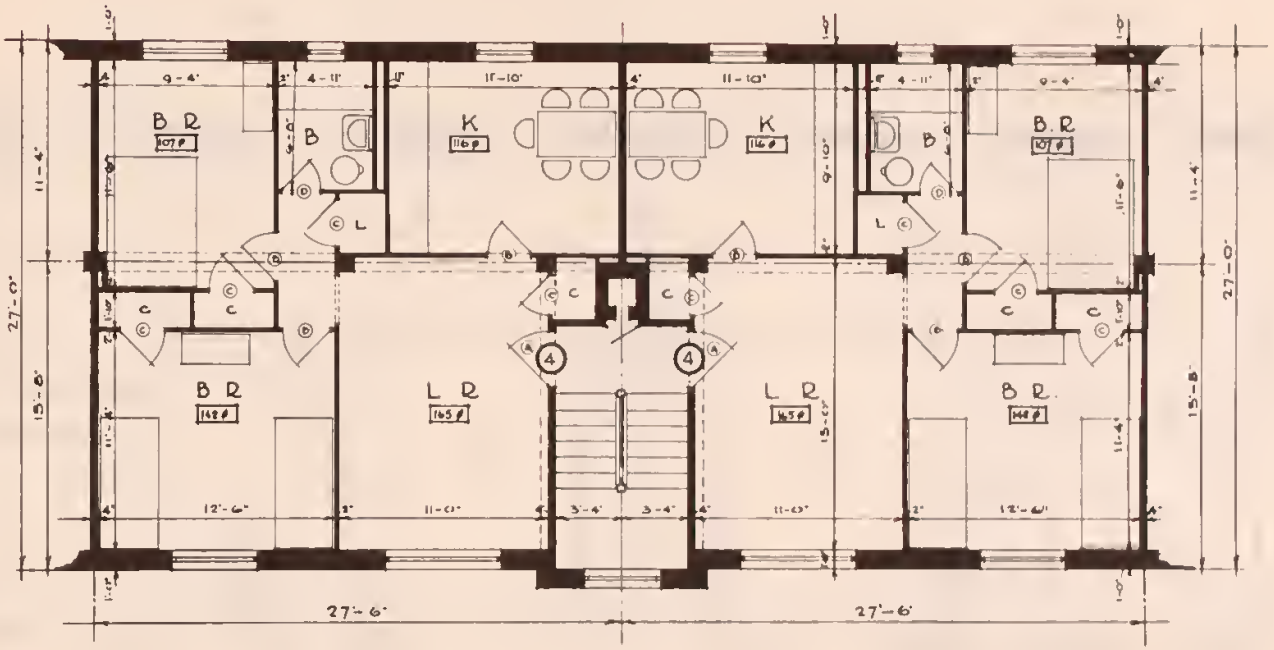
PLAN NUMBER
HD-29

REMARKS

1. Title: 4—4 (b) room unit.
2. Type of plan: Ribbon unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon.
4. General:
   (a) Direct entry into apartments through living rooms.
   (b) Not as efficient as T-units because one stair and incinerator serves only two apartments per floor; useful however as connecting or "spreader" unit for T and cross types.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy ...	Persons	10
Total gross area .	Square feet	1,494
Average gross room area	Square feet .	187
Total net area	Square feet .	1,060
Average net room area	Square feet ...	132
Percent efficiency—gross vs. net area	Percent	71.0
Outside wall per room:		
With no end wall	Lineal feet	13 feet 9 inches
Interior partitions per room	Lineal feet	28 feet 11 inches
Stairs and incinerators	Number per room	1/8
Closet space per room	Lineal feet	4 feet 1 inch
Arrangement of plumbing stacks	Number	2 B/K



UNIT 4 – 4 (b)

0 1 2 3 4 5 10

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JANUARY 30, 1935

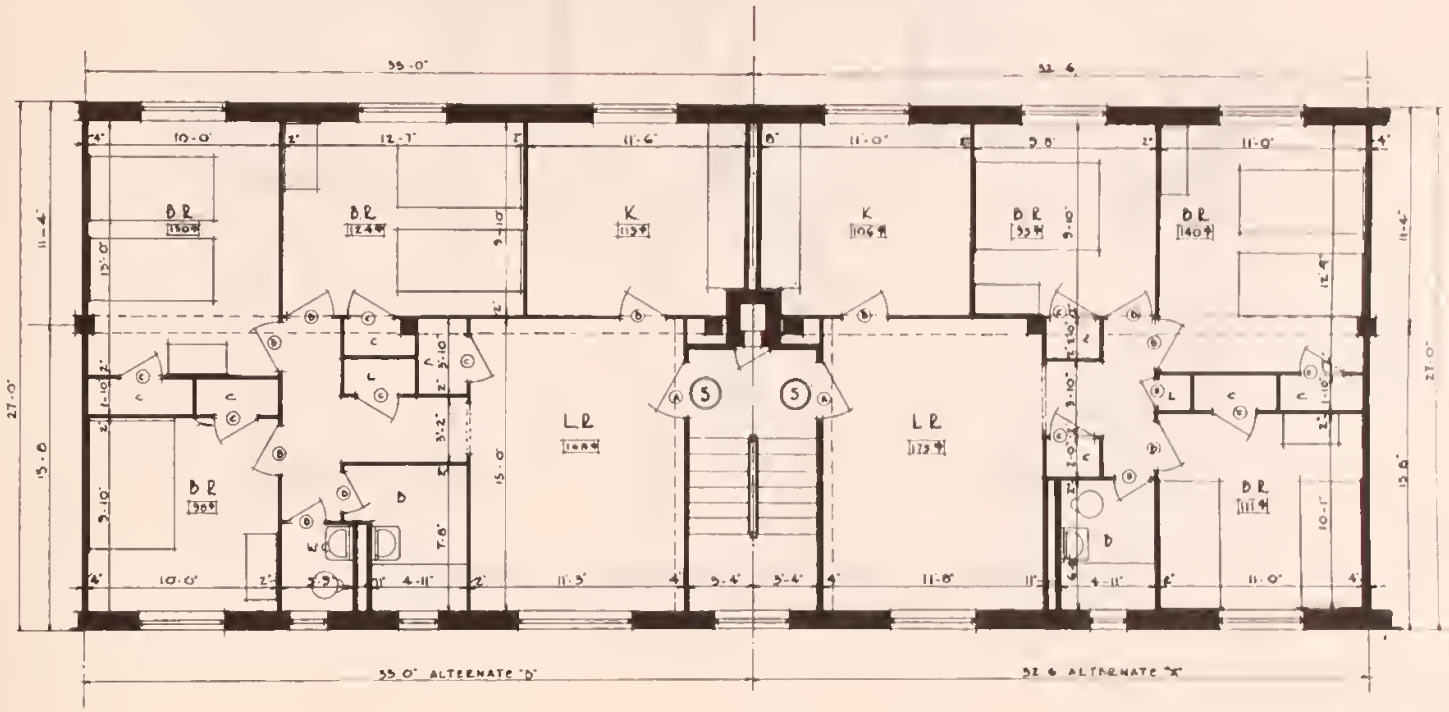
PLAN NUMBER
HD-30

REMARKS

1. Title: 5—5 room unit.
2. Type of plan: Ribbon unit.
3. Characteristics:
   - (a) An apartment house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a ribbon.
4. General:
   - (a) Note two alternates presented—left side being a 5-room unit with lavatory in addition to bath, and on right side the five rooms with one bath.
   - (b) Direct entry into apartments through living rooms.
   - (c) Not a highly efficient unit because one stair and incinerator serves only two apartments per floor; this is somewhat mitigated by the fact that ten rooms per floor are possible.

STATISTICS

Descriptive Item	Unit Used	Quantity: 32 feet 6 inches Unit	Quantity: 35 feet Unit
Number of rooms in unit	Rooms	10	10
Total occupancy	Persons	14	14
Total gross area	Square feet	878	945
Average gross room area	Square feet	175	189
Total net area	Square feet	627	633
Average net room area	Square feet	125	127
Percent efficiency—gross vs. net area	Percent	71.4	67
Outside wall per room: With no end wall	Lineal feet	13 feet	14 feet
Interior partitions per room	Lineal feet	28 feet 9 inches	31 feet 11 inches
Stairs and incinerators	Number per room	1/10	1/10
Closet space per room	Lineal feet	3 feet 6 inches	4 feet 4 inches
Arrangement of plumbing stacks	Number	1 B, 1 K	1 B/WC, 1 K



UNIT 5 – 5

0 1 2 3 4 5 10

SCALE IN FEET

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JANUARY 30, 1935

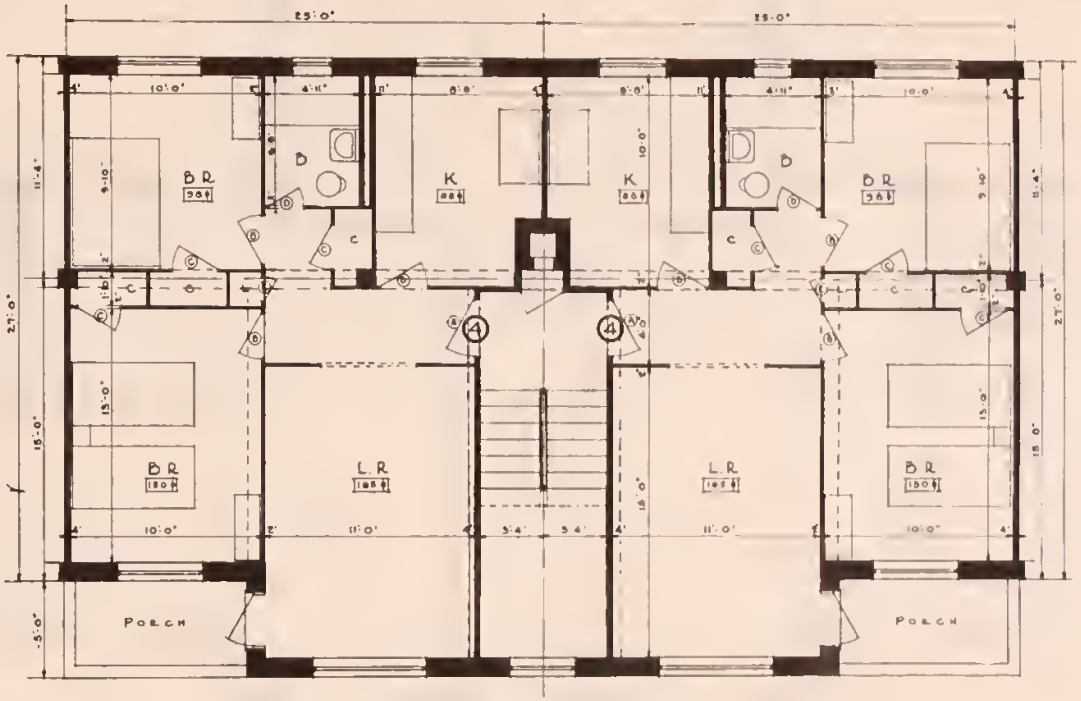
PLAN NUMBER
HD-31

REMARKS

1. Title: 4—4 room unit.
2. Type of plan: Ribbon unit with balconies.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon.
4. General:
   (a) Porch area not included in computations.
   (b) Not as efficient as a T-unit because one stair and incinerator serves only two apartments per floor; useful however as a connecting or "spreader" unit for T and cross types.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy	Persons	10
Total gross area	Square feet	1,506
Average gross room area	Square feet	188
Total net area	Square feet	962
Average net room area	Square feet	120
Percent efficiency—gross vs. net area	Percent	63.9
Outside wall per room:		
With no end wall	Lineal feet	13 feet 9 inches
Interior partitions per room	Lineal feet	28 feet
Stairs and incinerators	Number per room	1/8
Closet space per room	Lineal feet	3 feet 6 inches
Arrangement of plumbing stacks	Number	2 B/K



UNIT 4 – 4

0 1 2 3 4 5 10

SCALE IN FEET

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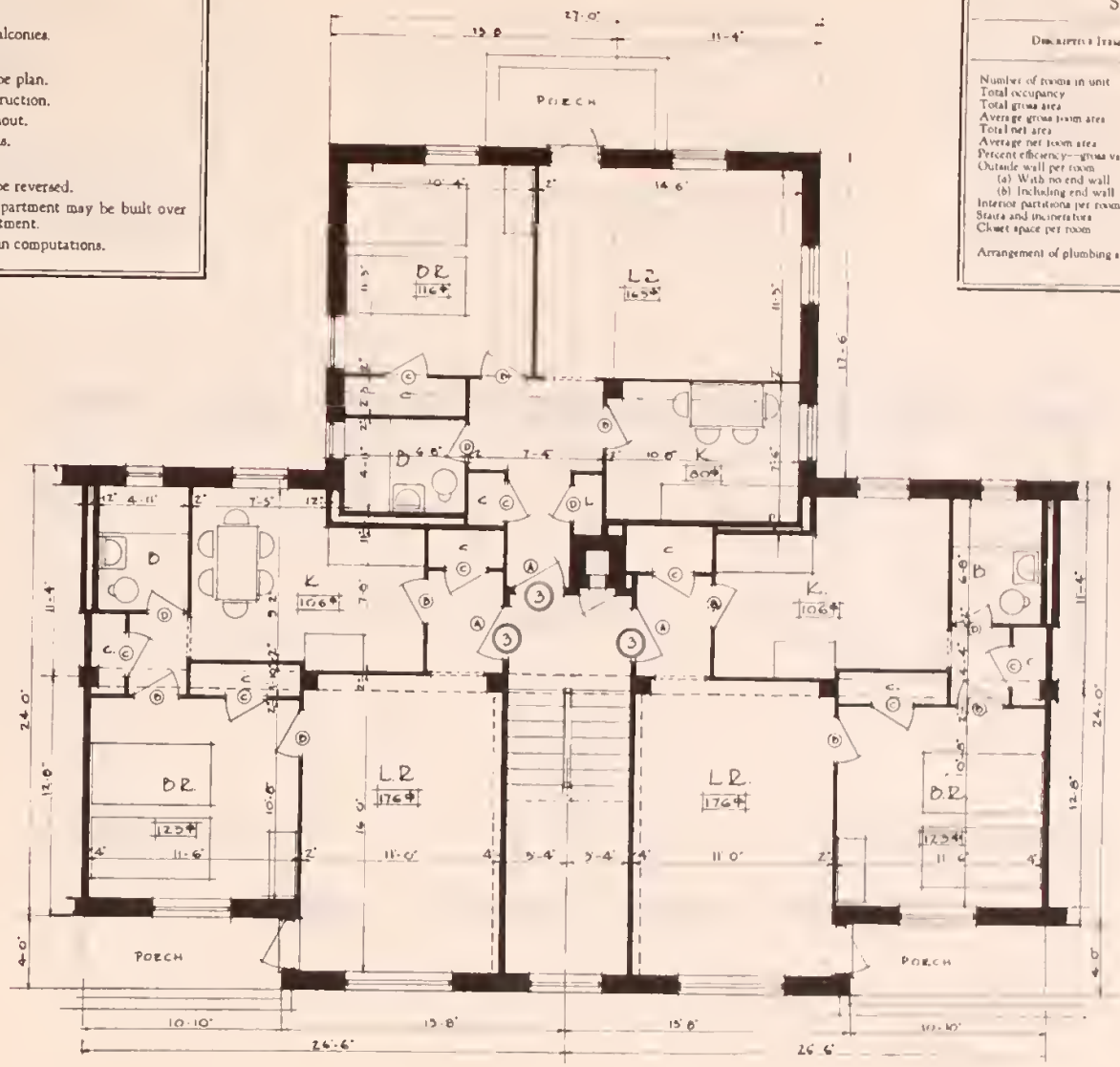
DIRECTOR OF HOUSING

JANUARY 30, 1935

PLAN NUMBER
HD-32

REMARKS

1. Title: 3—3—3 room unit.
2. Type of plan: T-unit with balconies.
3. Characteristics:
   - (a) An apartment house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a run of T-plans.
4. General:
   - (a) Center apartment may be reversed.
   - (b) Penthouse and garden apartment may be built over and under center apartment.
   - (c) Porch area not included in computations.



STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	9
Total occupancy	Persons	9
Total gross area	Square feet	1,870
Average gross room area	Square feet	208
Total net area	Square feet	1,160
Average net room area	Square feet	130
Percent efficiency—gross vs. net area	Percent	62.5
Outside wall per room		
(a) With no end wall	Lineal feet	13 feet 7 inches
(b) Including end wall	Lineal feet	16 feet 7 inches
Interior partitions per room	Lineal feet	30 feet 4 inches
Stairs and incinerators	Number per room	1/9
Closet space per room	Lineal feet	4 feet 9 inches
Arrangement of plumbing stacks	Number	1 B/K 1 K/K 2 B

UNIT 3 – 3 – 3

0 1 2 3 4 5 10

SCALE IN FEET

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HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

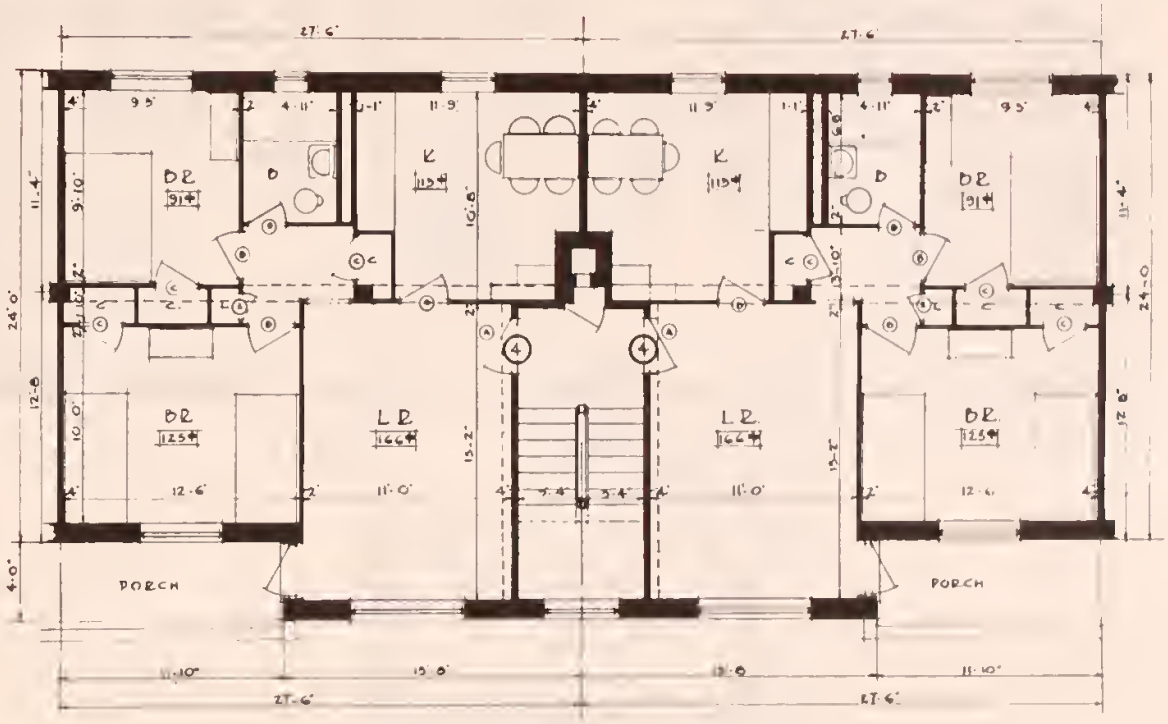
PLAN NUMBER
HD-33

REMARKS

1. Title: 4—4 room unit.
2. Type of plan: Ribbon unit with balconies.
3. Characteristics:
   (a) An apartment house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon.
4. General:
   (a) Direct entry into apartments through living room.
   (b) Porch area not included in computations.
   (c) Not as efficient as a T-unit because one stair and incinerator serves only two apartments per floor, useful however as a connecting or "spreader" unit for T and cross types.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy	Persons	10
Total gross area	Square feet	1,449
Average gross room area	Square feet	181
Total net area	Square feet	990
Average net room area	Square feet	121
Percent efficiency—gross vs. net area	Percent	68.3
Outside wall per room With no end wall	Lineal feet	14 feet 9 inches
Interior partitions per room	Lineal feet	23 feet 7 inches
Stairs and incinerators	Number per room	1/8
Closet space per room	Lineal feet	3 feet 2 inches
Arrangement of plumbing stacks	Number	2 B/K



UNIT 4 – 4

0 1 2 3 4 5 10

SCALE IN FEET

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HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

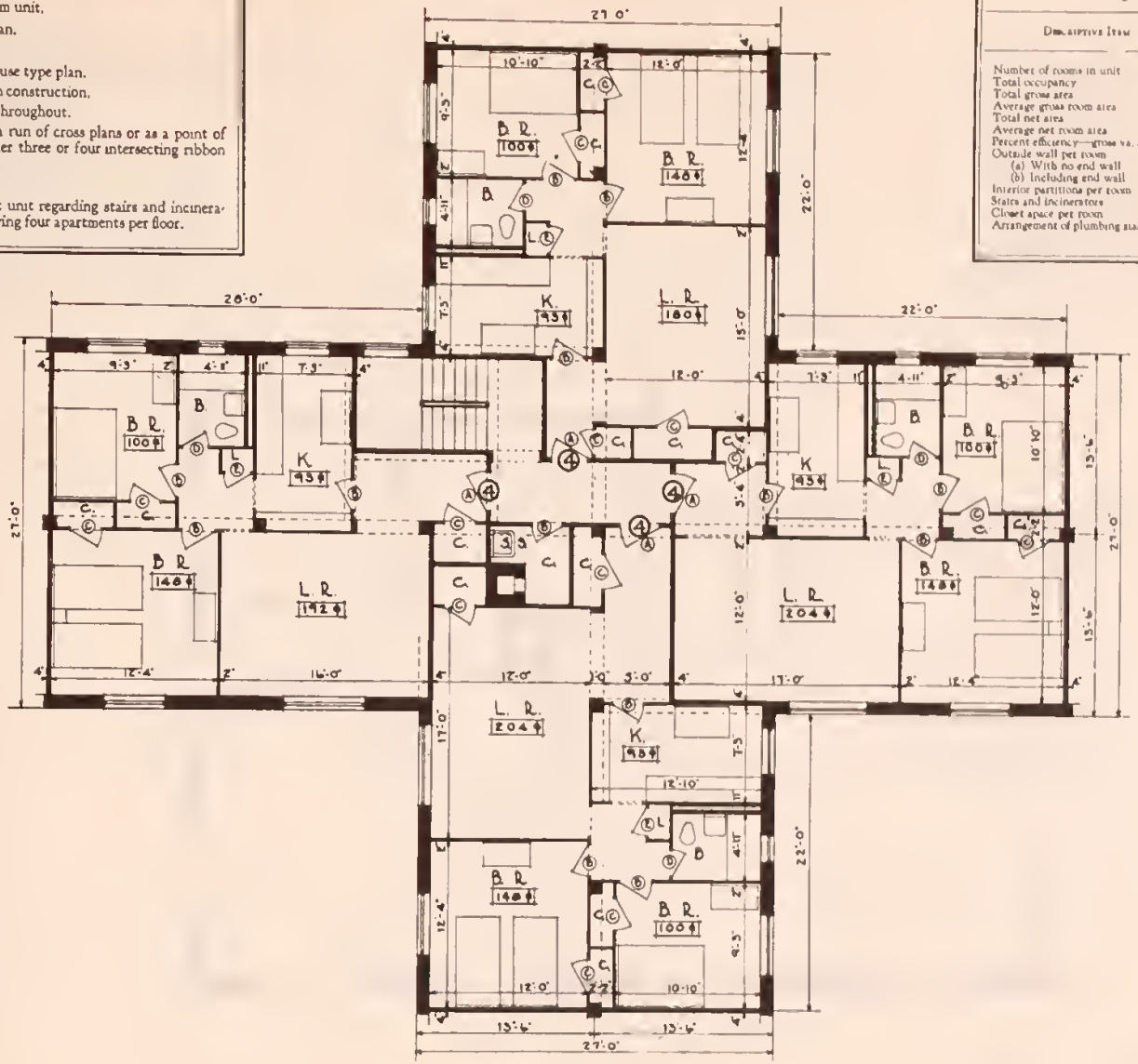
PLAN NUMBER
HD-34

REMARKS

1. Title: 4—4—4—4-room unit.
2. Type of plan: Cross plan.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as a run of cross plans or as a point of meeting of either three or four intersecting ribbon units.
4. General:
   (a) A highly efficient unit regarding stairs and incinerator—these serving four apartments per floor.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	16
Total occupancy	Persons	20
Total gross area	Square feet	3,267
Average gross room area	Square feet	204
Total net area	Square feet	2,156
Average net room area	Square feet	135
Percent efficiency—gross vs. net area	Percent	65.9
Outside wall per room		
(a) With no end wall	Lineal feet	12 feet
(b) Including end wall	Lineal feet	15 feet 5 inches
Interior partitions per room	Lineal feet	33 feet 6 inches
Stairs and incinerators	Number per room	1/16
Closet space per room	Lineal feet	4 feet 8 inches
Arrangement of plumbing stacks	Number	4 B/K



UNIT 4 – 4 – 4 – 4

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DIRECTOR OF HOUSING

JANUARY 30, 1935

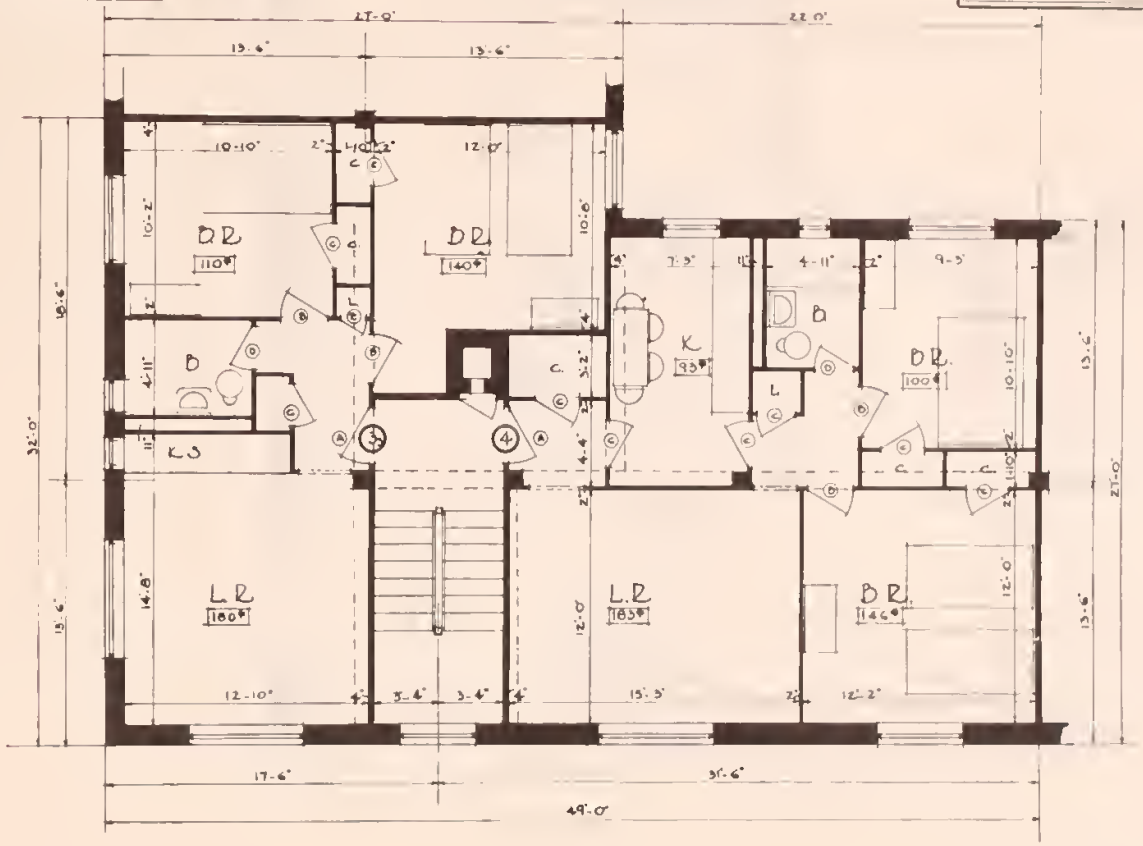
PLAN NUMBER
HD-35

REMARKS

1. Title: 3s—4-room unit.
2. Type of plan: Corner unit.
3. Characteristics:
   - (a) An apartment house type plan, with one strip kitchen and one complete kitchen.
   - (b) On-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a corner for joining other plan types.
4. General:
   - (a) Average room area increase due to use of strip kitchen.
   - (b) Not as efficient as T-units because one stair and incinerator serves only two apartments per floor, useful, however, as a connecting or "spreader" unit for T and cross types.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	7
Total occupancy	Persons	10
Total gross area	Square feet	1,458
Average gross room area	Square feet	208
Total net area	Square feet	952
Average net room area	Square feet	136
Percent efficiency—gross vs. net area	Percent	65.3
Outside wall per room		
(a) With no end wall	Lineal feet	15 feet 3 inches
Interior partitions per room	Lineal feet	30 feet 8 inches
Stairs and incinerators	Number per room	1/7
Closet space per room	Lineal feet	4 feet 3 inches
Arrangement of plumbing stacks	Number	2B/K



UNIT 3s – 4

0 1 2 3 4 5 10

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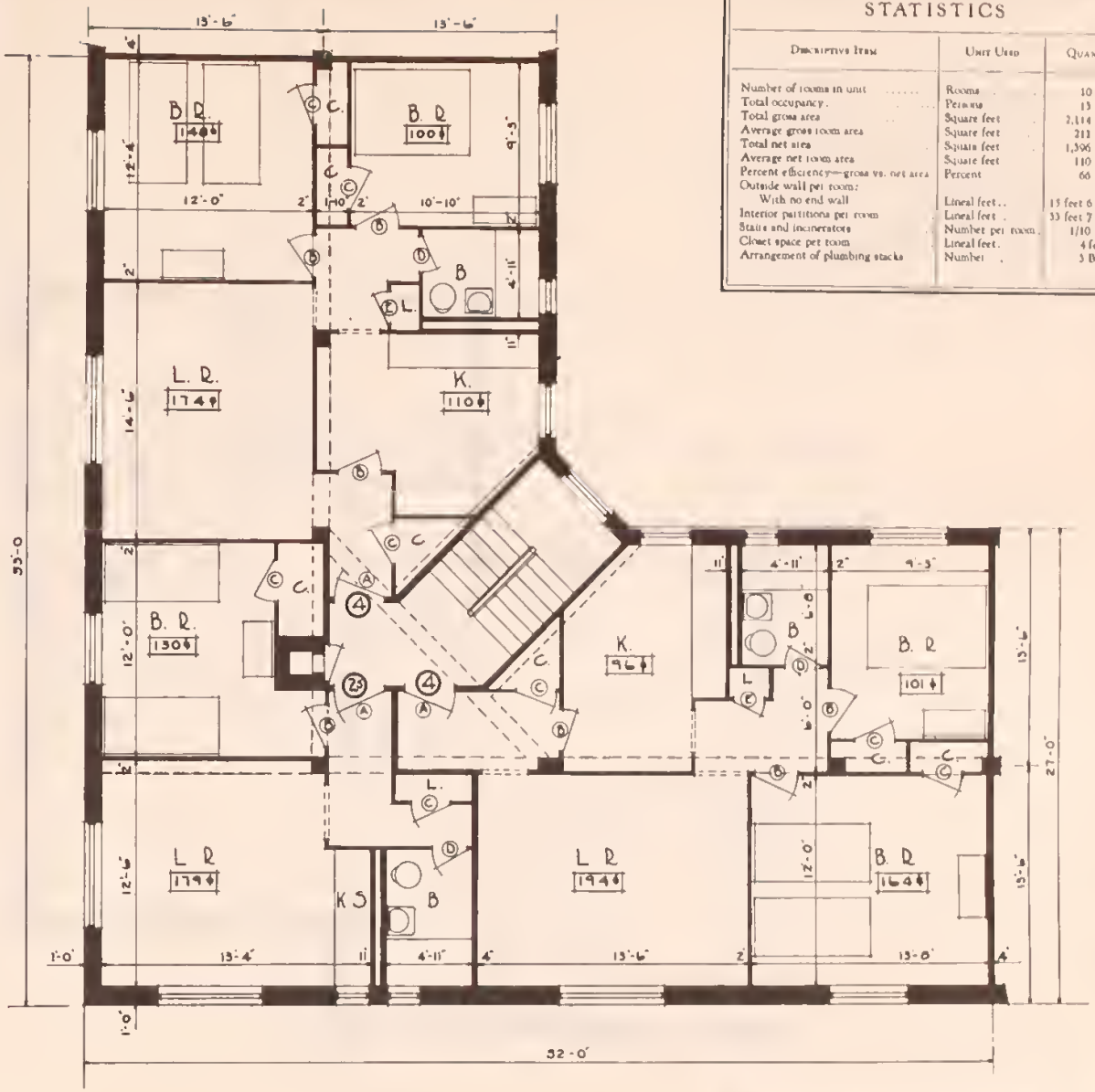
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING

JANUARY 30, 1935

PLAN NUMBER
HD-36

REMARKS

1. Title: 4—2s—4-room unit.
2. Type of plan: Corner unit.
3. Characteristics:
   - (a) An apartment house type plan with one strip kitchen and two complete kitchens.
   - (b) On-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a corner for joining other plan types.
4. General:
   - (a) Average room area increase due to use of strip kitchen.
   - (b) Note diagonal location of stair giving access from garden side of unit.



STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	10
Total occupancy	Persons	13
Total gross area	Square feet	2,114
Average gross room area	Square feet	211
Total net area	Square feet	1,396
Average net room area	Square feet	110
Percent efficiency—gross vs. net area	Percent	66
Outside wall per room: With no end wall	Lineal feet	15 feet 6 inches
Interior partitions per room	Lineal feet	33 feet 7 inches
Stairs and incinerators	Number per room	1/10
Closet space per room	Lineal feet	4 feet
Arrangement of plumbing stacks	Number	3 B/K

UNIT 4 – 2s – 4

0 1 2 3 4 5 10

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DIRECTOR OF HOUSING

JANUARY 30, 1935

PLAN NUMBER

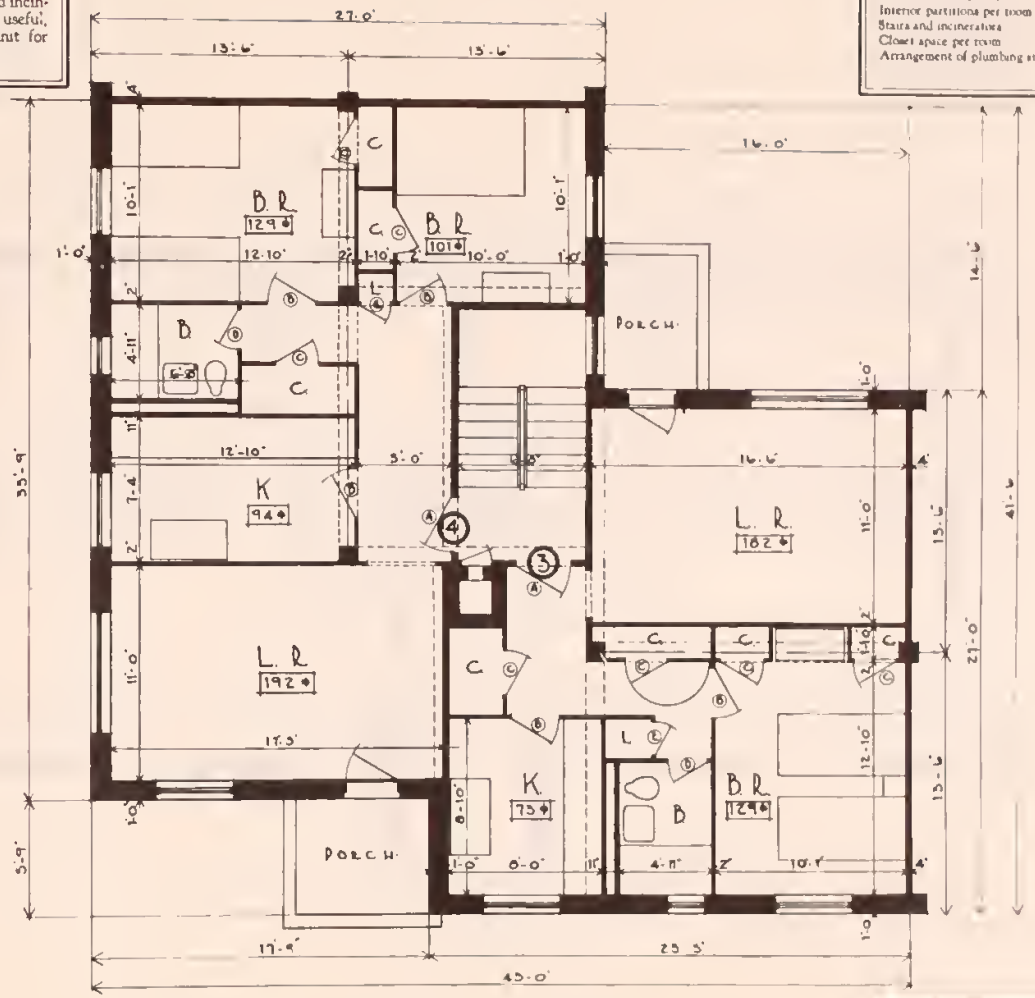
HD-37

REMARKS

1. Title: 4—3 room unit.
2. Type of plan: Corner unit with balconies.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a corner for joining other plan types.
4. General.
   (a) Porch area not included in computations.
   (b) Not as efficient as T-units because one stair and incinerator serves only two apartments per floor; useful, however, as a connecting or "spreader" unit for T and cross types.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	7
Total occupancy	Persons	8
Total gross area	Square feet	3,450
Average gross room area	Square feet	207
Total net area	Square feet	900
Average net room area	Square feet	129
Percent efficency—gross vs. net area	Percent	62.1
Outside wall per room:		
With no end wall	Lineal feet	16 feet 3 inches
Interior partitions per room	Lineal feet	32 feet 7 inches
Stairs and incinerators	Number per room	1/7
Closet space per room	Lineal feet	3 feet 1 inch
Arrangement of plumbing stacks	Number	2 B/K



UNIT 4 – 3

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JANUARY 30, 1935

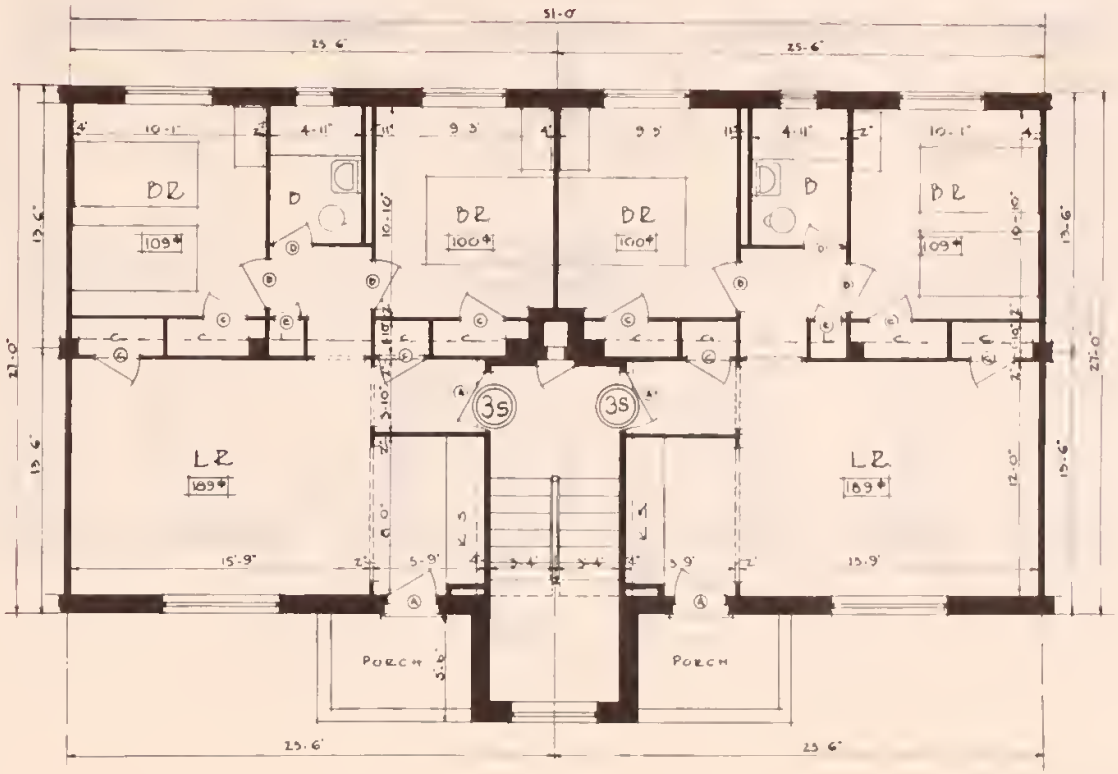
PLAN NUMBER
HD-38

REMARKS

1. Title: 3s—3s-room unit.
2. Type of plan. Ribbon unit with balconies.
3. Characteristics:
   (a) An apartment house type plan with strip kitchens.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon.
4. General:
   (a) Compulsory passing through living rooms in both apartments
   (b) Porch area not included in computation.
   (c) Average room area increase due to use of strip kitchens

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	6
Total occupancy	Persons	10
Total gross area	Square feet	1,423
Average gross room area	Square feet	238
Total net area	Square feet	886
Average net room area	Square feet	148
Percent efficiency—gross vs. net area	Percent	62.2
Outside wall per room With no end wall	Lineal feet	18 feet 10 inches
Interior partitions per room	Lineal feet	39 feet 3 inches
Stairs and incinerators	Number per room	1/6
Closet space per room	Lineal feet	6 feet 6 inches
Arrangement of plumbing stacks	Number	2 B 2 K



UNIT 3s – 3s

0 1 2 3 4 5 10

SCALE IN FEET

UNITED STATES
FEDERAL EMERGENCY ADMINISTRATION
OF PUBLIC WORKS
HAROLD L. ICKES · ADMINISTRATOR

HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

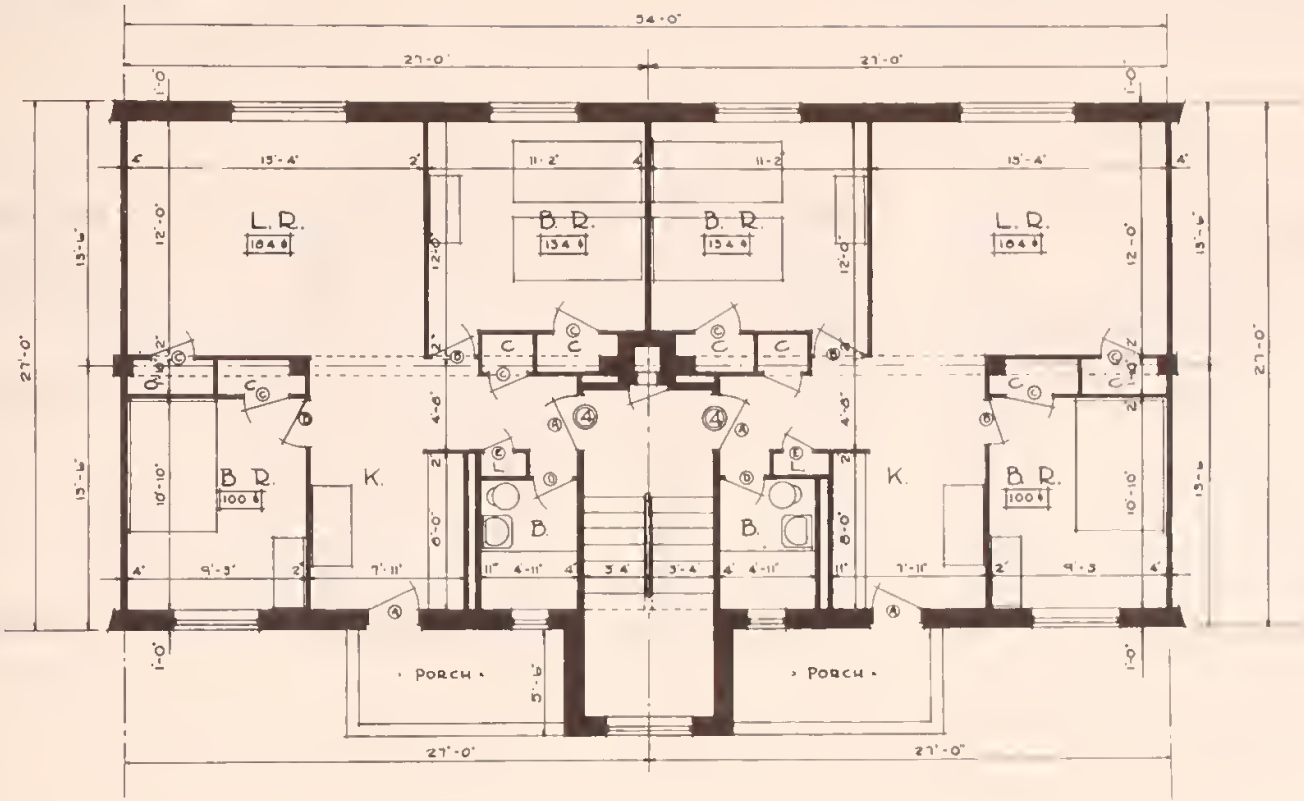
PLAN NUMBER
HD-39

REMARKS

1. Title: 4—4-room unit.
2. Type of plan: Ribbon unit with balconies.
3. Characteristics.
   (a) An apartment house type plan.
   (b) On-center column construction
   (c) Bathrooms same throughout.
   (d) Used as a ribbon.
4. General:
   (a) Compulsory passing through end of kitchen in order to enter living room.
   (b) Porch areas not included in computations.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy	Persons	10
Total gross area	Square feet	1,506
Average gross room area	Square feet	188
Total net area	Square feet	964
Average net room area	Square feet	120
Percent efficiency—gross vs. net area	Percent	64
Outside wall per room With no end wall	Lineal feet	14 feet 10 inches
Interior partitions per room	Lineal feet	28 feet
Stairs and incinerators	Number per room	1/8
Closet space per room	Lineal feet	4 feet 8 inches
Arrangement of plumbing stacks	Number	2 B/K



UNIT 4 – 4

0 1 2 3 4 5 10

SCALE IN FEET

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HOUSING DIVISION
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JANUARY 30, 1935

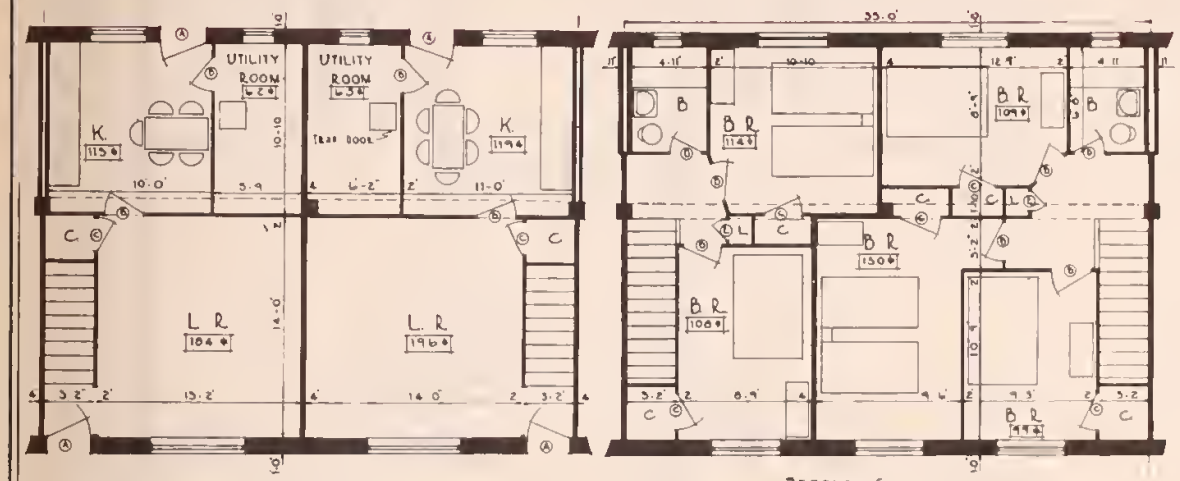
PLAN NUMBER
HD-40

REMARKS

1. Title: 4- and 5-room row houses.
2. Type of plan: Ribbon unit.
3. Characteristics:
   (a) A row house and interlocking row house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon, with basements optional.
4. General:
   (a) Efficient plumbing layout with stacks grouped.
   (b) Utility room on first floor may be used for heating or boiler room or storage space when basement is eliminated. Can be omitted from plan by increasing kitchen area or use as a dinette.
   (c) Units can readily be reversed.

STATISTICS

Descriptive Item	Unit Used	Quantity: 4-room row house	Quantity: 4 to 5-room interlocking
Number of rooms in unit	Rooms	4	9
Total occupancy	Persons	5	12
Total gross area	Square feet	847	1,890
Average gross room area	Square feet	209	210
Total net area	Square feet	526	1,174
Average net room area	Square feet	131	130
Percent efficiency—gross vs. net area	Percent	62.8	62.1
Outside wall per room: With no end wall	Lineal feet	15 feet 6 inches	15 feet 7 inches
Interior partitions per room	Lineal feet	38 feet	37 feet 3 inches
Stairs	Number per room	1/4	2/9
Closet space per room	Lineal feet	3 feet 9 inches	3 feet 3 inches
Arrangement of plumbing stacks	Number	1 B/K	2 B/K



FIRST FLOOR — SECOND FLOOR

4 & 5 ROOM INTERLOCKING ROW HOUSES

· FIRST FLOOR · — ·SECOND FLOOR·

4 ROOM ROW HOUSE

SCALE IN FEET

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JANUARY 30, 1935

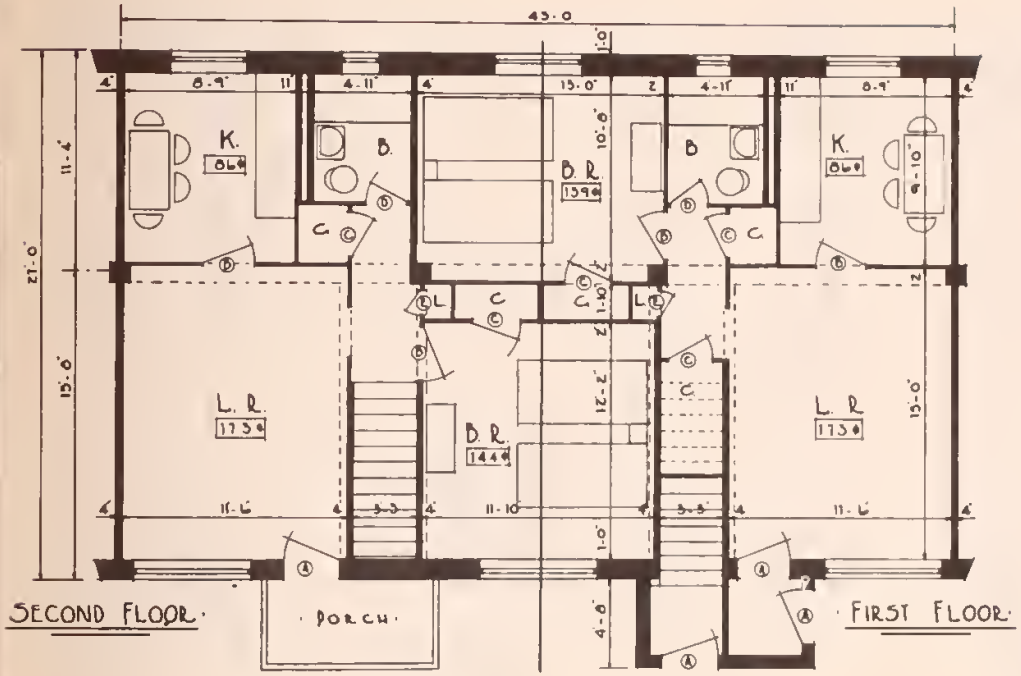
PLAN NUMBER
HD-41

REMARKS

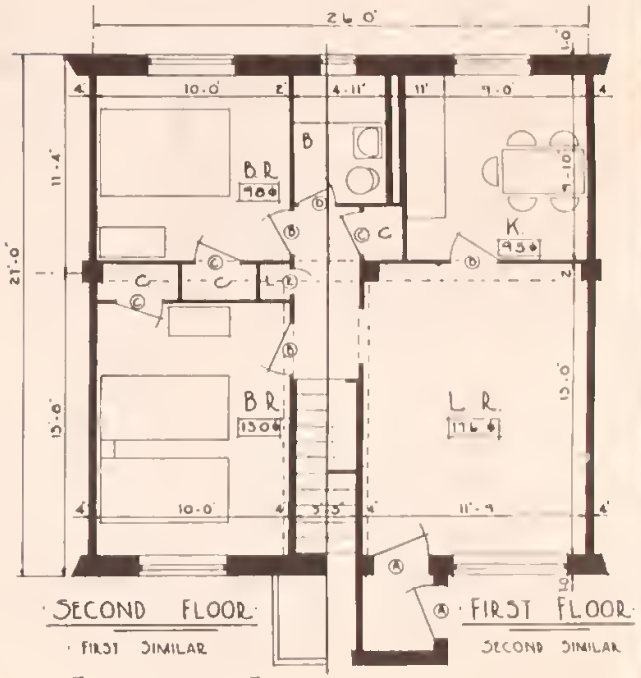
1. Title: 3- and 4-room flats.
2. Type of plan: Ribbon unit with balconies.
3. Characteristics:
   (a) A flat house of interlocking type.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon, with basements optional.
4. General:
   (a) Efficient plumbing layout with stacks grouped.
   (b) Can be reversed.

STATISTICS

Descriptive Item	Unit Used	Quantity: 3-room interlocking	Quantity: 4-room flat
Number of rooms in unit	Rooms	6	4
Total occupancy	Persons	6	5
Total gross area	Square feet	1,161	702
Average gross room area	Square feet	194	176
Total net area	Square feet	801	499
Average net room area	Square feet	133	125
Percent efficiency—gross vs. net area	Percent	69	71.1
Outside wall per room With no end wall	Lineal feet	17 feet 2 inches	15 feet
Interior partitions per room	Lineal feet	33 feet 6 inches	33 feet 4 inches
Stairs	Number per room	1/6	1/4
Closet space per room	Lineal feet	5 feet 8 inches	4 feet 5 inches
Arrangement of plumbing stacks	Number	2 B/K	1 B/K



INTERLOCKING THREE ROOM FLATS



FOUR ROOM FLAT

SCALE IN FEET

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JANUARY 30, 1935

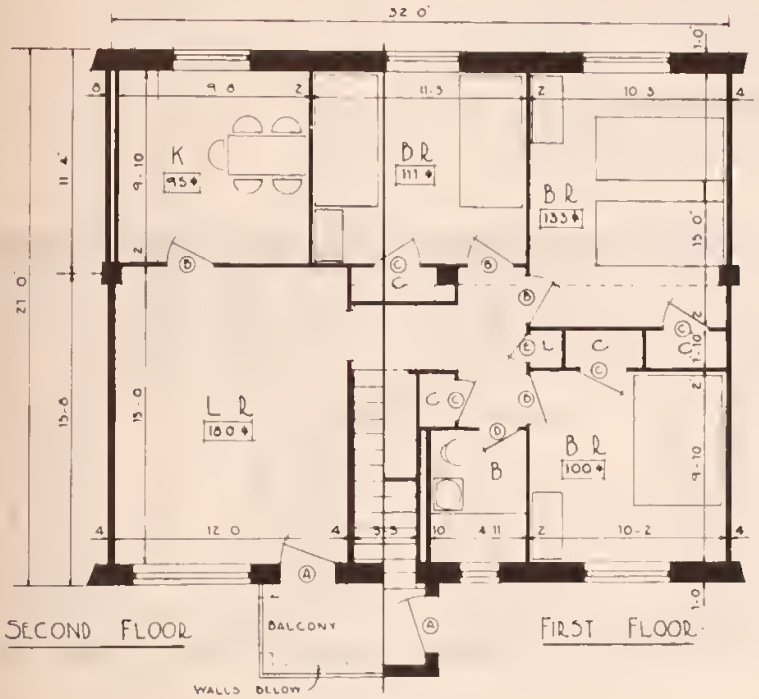
PLAN NUMBER
HD-42

REMARKS

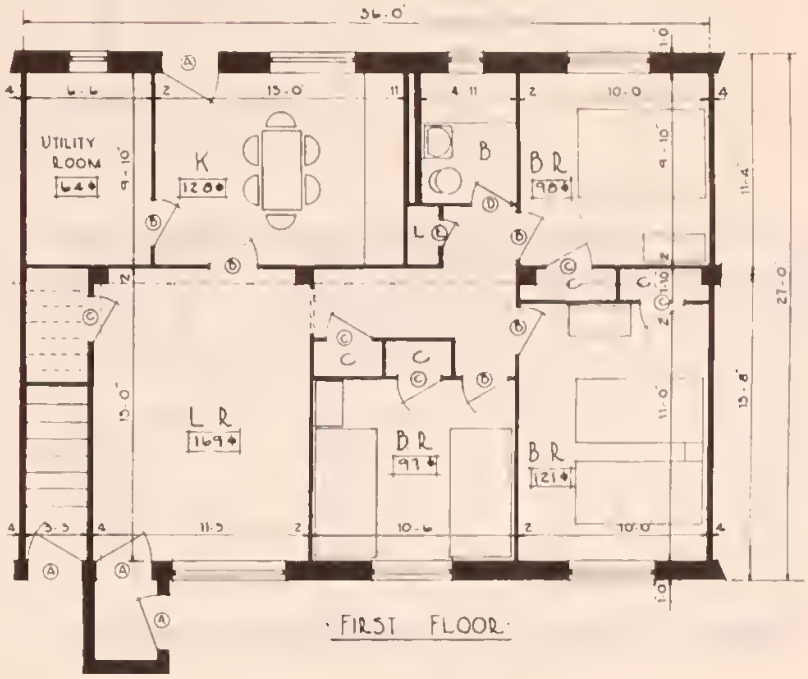
1. Title. 5 room flats
2. Type of plan. Ribbon unit with balconies.
3. Characteristics
   (a) A flat house type plan, with utility room optional.
   (b) Off-center column construction.
   (c) Bathrooms same throughout
   (d) Used as a ribbon, with basements optional.
4. General
   (a) Efficient plumbing layout with stacks grouped.
   (b) Units can be reversed.

STATISTICS

Descriptive Item	Unit Used	Quantity: 5 room flat	Quantity: 5 room and utility
Number of rooms in unit	Rooms	5	6
Total occupancy	Persons	7	7
Total gross area	Square feet	864	972
Average gross room area	Square feet	173	194
Total net area	Square feet	619	613
Average net room area	Square feet	124	123
Percent efficiency — gross vs. net area	Percent	71.6	63.1
Outside wall per room			
With no end wall	Lineal feet	14 feet 8 inches	15 feet 8 inches
Interior partitions per room	Lineal feet	33 feet 6 inches	37 feet 11 inches
Stairs	Number per room	1:10	1:10
Closet space per room	Lineal feet	4 feet 2 inches	5 feet 6 inches
Arrangement of plumbing stacks	Number	11 K 11 B	1 B&K



FIVE ROOM FLAT



FIVE ROOM FLAT - WITH UTILITY ROOM

SCALE IN FEET

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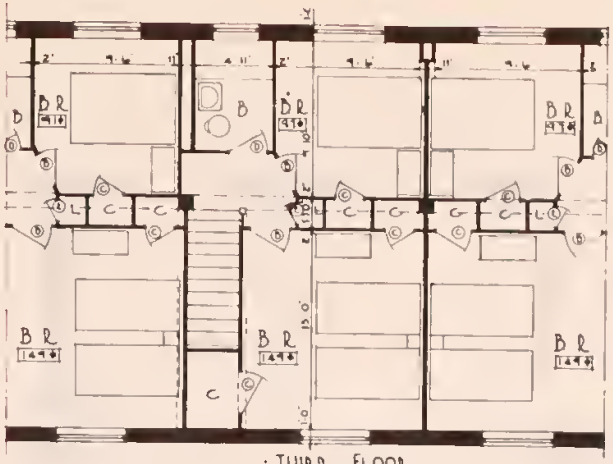
DIRECTOR OF HOUSING
JANUARY 30, 1935

PLAN NUMBER
HD-43

REMARKS

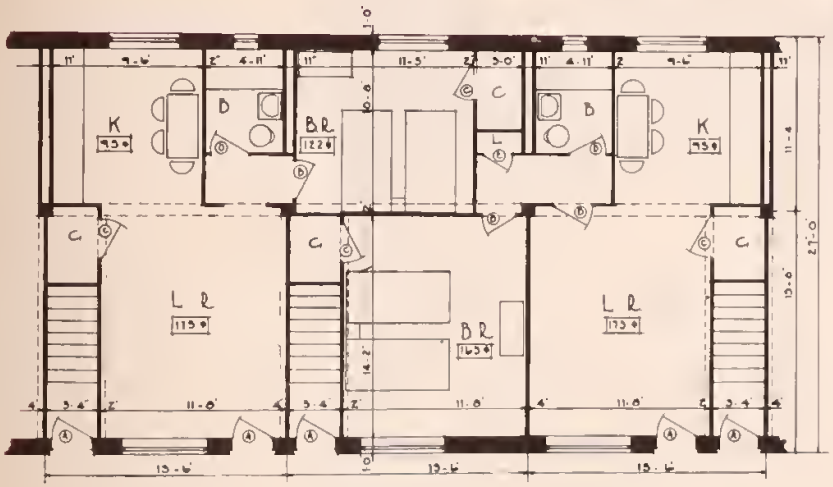
1. Title: 3- and 4-room three-story combination houses
2. Type of plan: Ribbon unit.
3. Characteristics:
   (a) A combination flat and row house plan type with 2-story row house superimposed over a 1-story flat.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon, with basements optional.
4. General:
   (a) Efficient plumbing layout with stacks grouped.
   (b) Units can be reversed.



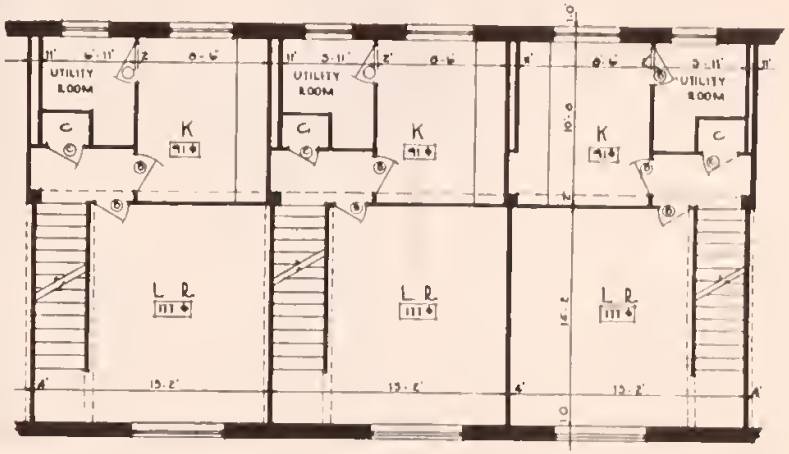
THIRD FLOOR

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	18
Total occupancy	Persons	21
Total gross area	Square feet	3,767
Average gross room area	Square feet	209
Total net area	Square feet	2,363
Average net room area	Square feet	131
Percent efficiency—gross vs. net area	Percent	62.7
Outside wall per room:		
(a) With no end wall	Lineal feet	15 feet 5 inches
(b) Including end wall	Lineal feet	
Interior partitions per room	Lineal feet	38 feet 3 inches
Stairs	Number per room	6/18
Closet space per room	Lineal feet	3 feet 6 inches
Arrangement of plumbing stacks	Number	1 B/K/B 1 B/K 1 B/K/K



FIRST FLOOR



SECOND FLOOR

0 1 2 3 4 5 10
SCALE IN FEET

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HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

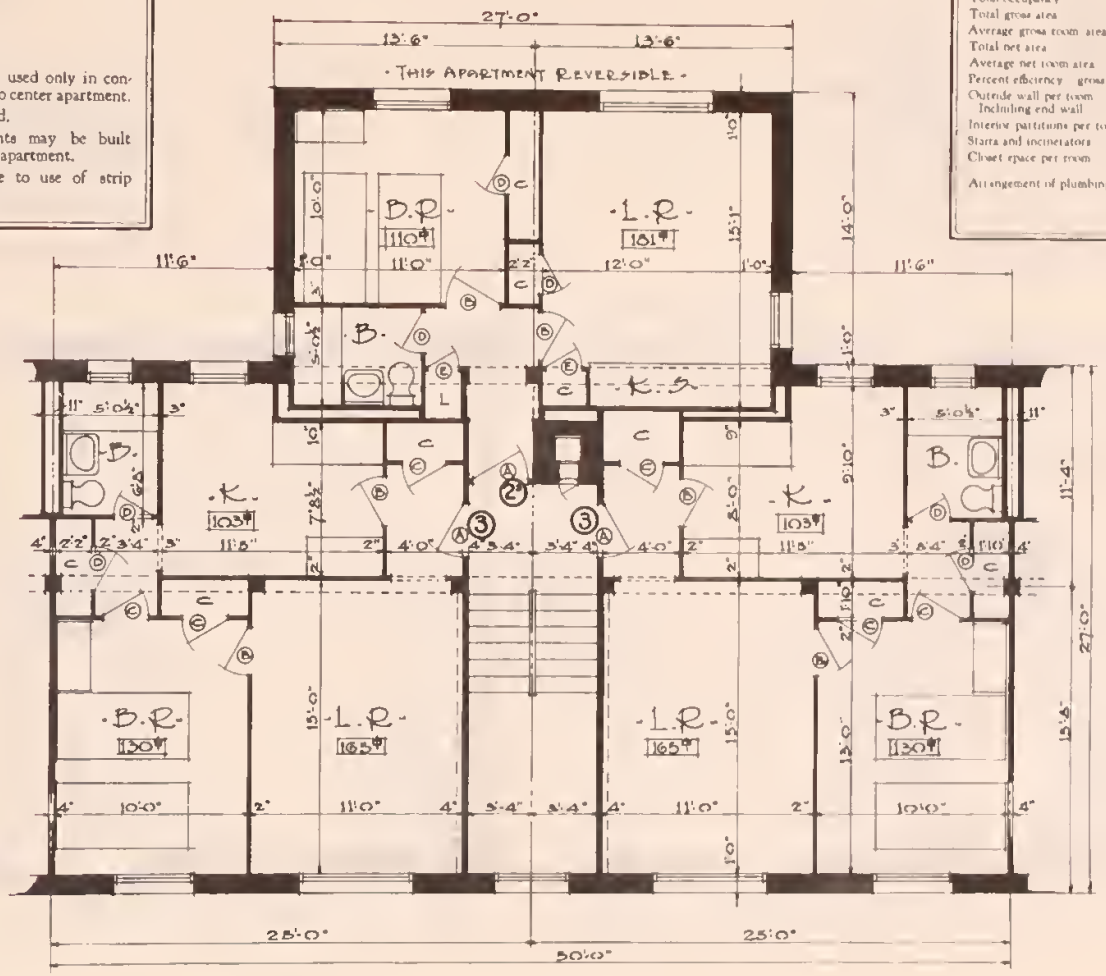
PLAN NUMBER
HD-44

REMARKS

1. Title: 3—2s—3 room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan with one strip kitchen and two complete kitchens.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as a run of T-plans.
4. General:
   (a) This plan, as presented, is to be used only in connection with end wall applied to center apartment.
   (b) Center apartment may be reversed.
   (c) Penthouse and garden apartments may be built directly over and under center apartment.
   (d) Average room area increase due to use of strip kitchen.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy	Persons	9
Total gross area	Square feet	1,728
Average gross room area	Square feet	216
Total net area	Square feet	1,087
Average net room area	Square feet	136
Percent efficiency gross vs. net area	Percent	62.9
Outside wall per room Including end wall	Lineal feet	16 feet
Interior partitions per room	Lineal feet	34 feet 11 inches
Stairs and incinerators	Number per room	1/8
Closet space per room	Lineal feet	4 feet 11 inches
Arrangement of plumbing stacks	Number	1 K/B 1 K/K 1 B



UNIT 3 – 2s – 3

0 1 2 3 4 5 10

SCALE IN FEET

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HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING

JANUARY 30, 1935

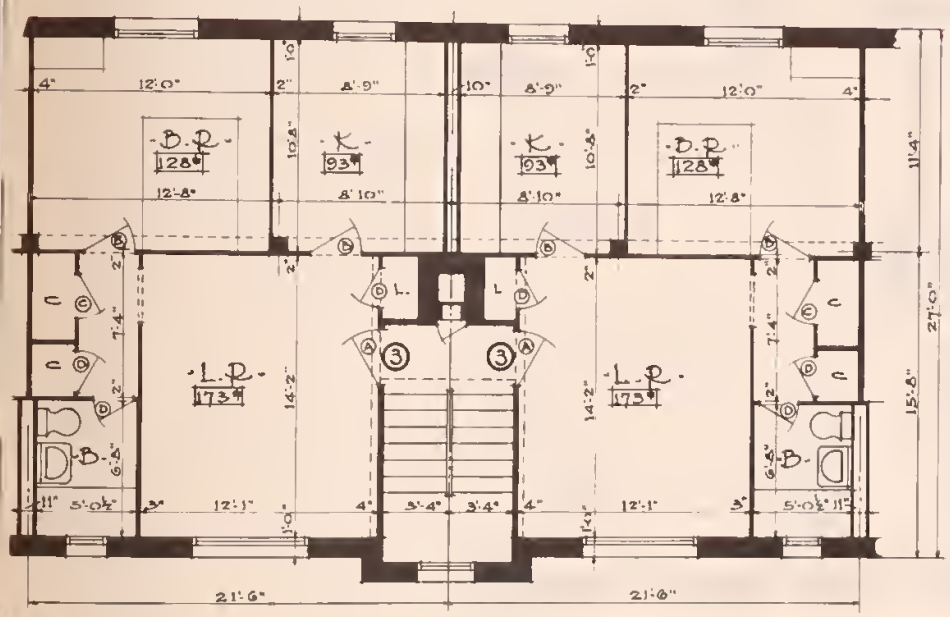
PLAN NUMBER
HD-45

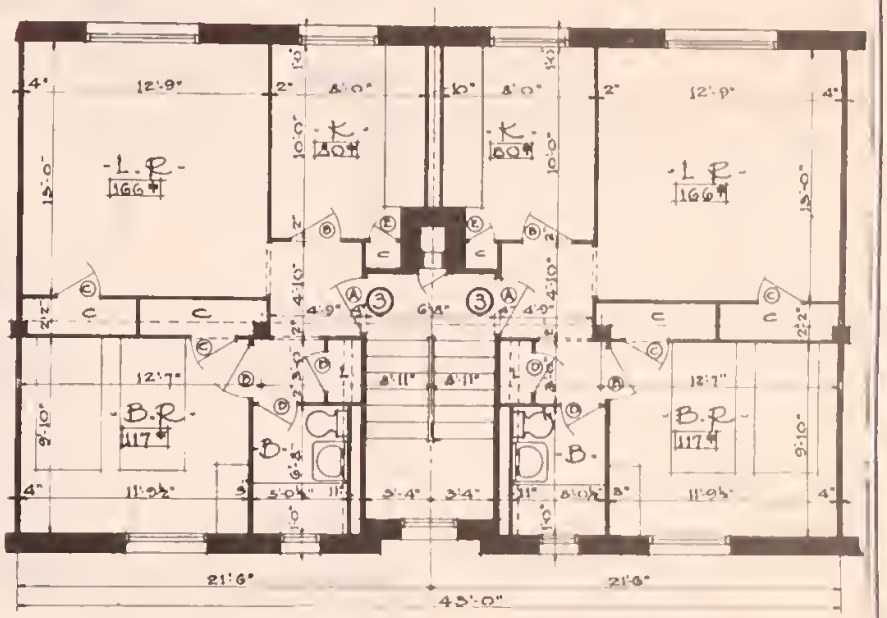
REMARKS

1. Title: 3—3 room units (alternate schemes).
2. Type of plan: Ribbon units.
3. Characteristics:
   - (a) Apartment house type plans.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a ribbon.
4. General:
   - (a) Note two alternatives presented—one showing living rooms on same side as stair and other scheme with living rooms on opposite side.
   - (b) Not as efficient as T-units because one stair and incinerator serves only two apartments per floor; useful however as a connecting and "spreader" unit for T and cross-types.
   - (c) Direct entry into apartments through living rooms in one scheme.

STATISTICS

Descriptive Item	Unit Used	Quantity A	Quantity B
Number of rooms in unit	Rooms	6	6
Total occupancy	Persons	6	6
Total gross area	Square feet	1,158	1,172
Average gross room area	Square feet	193	195
Total net area	Square feet	726	788
Average net room area	Square feet	121	131
Percent efficiency—gross vs. net area	Percent	62.7	67.2
Outside wall per room With no end wall	Lineal feet	14 feet 8 inches	14 feet 9 inches
Interior partitions per room	Lineal feet	34 feet 2 inches	30 feet
Stairs and incinerators	Number per room	1/6	1/6
Closet space per room	Lineal feet	6 feet	3 feet 4 inches
Arrangement of plumbing stacks	Number	1 K/K 2 B	1 K/K 2 B





UNIT 3 – 3

0 1 2 3 4 5 10

SCALE IN FEET

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HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING

JANUARY 30, 1935

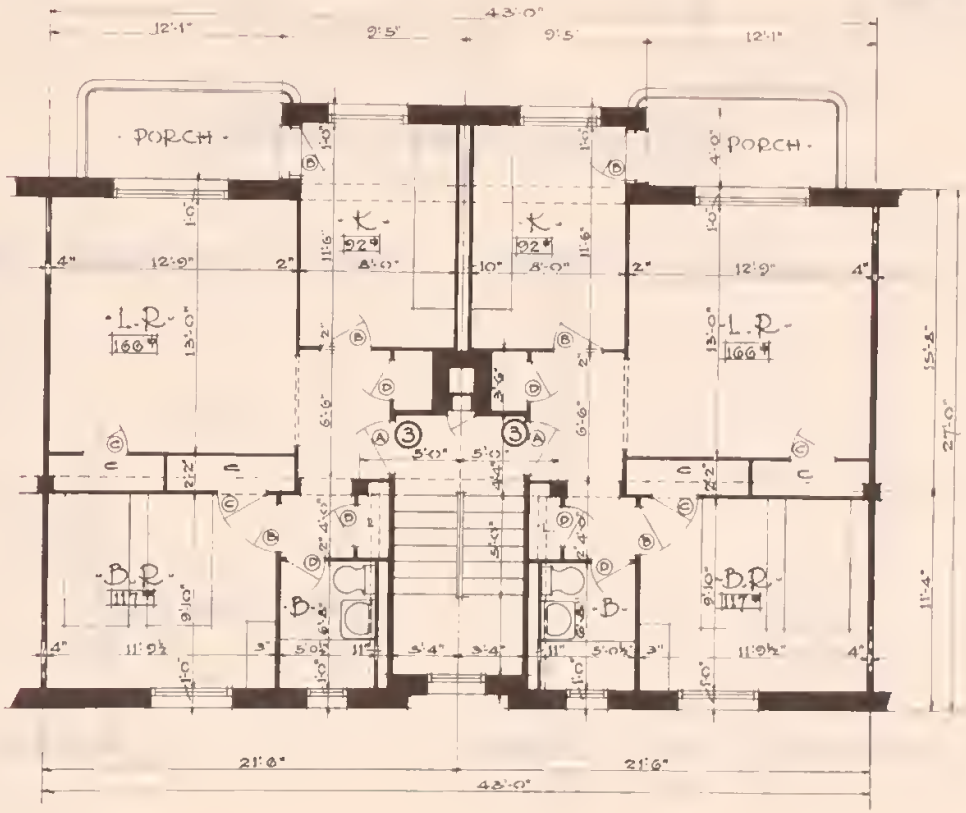
PLAN NUMBER
HD-46

REMARKS

1. Title: 3—3 room unit
2. Type of plan: Ribbon unit with balconies.
3. Characteristics:
   - (a) An apartment house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a ribbon.
4. General:
   - (a) Porch area not included in computations.
   - (b) Not as efficient as T-units because one stair and incinerator serves only two apartments per floor, useful however as a connecting and "spreader unit for T and cross-types.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	6
Total occupancy	Persons	6
Total gross area	Square feet	1,238
Average gross room area	Square feet	207
Total net area	Square feet	750
Average net room area	Square feet	125
Percent efficiency—gross vs. net area	Percent	60.5
Outside wall per room		
With no end wall	Lineal feet	15 feet 8 inches
Interior partitions per room	Lineal feet	35 feet 10 inches
Stairs and incinerators	Number per room	1/6
Closet space per room	Lineal feet	6 feet 8 inches
Arrangement of plumbing stacks	Number	1 K/K 2 B



UNIT 3 – 3

0 1 2 3 4 5 10

SCALE IN FEET

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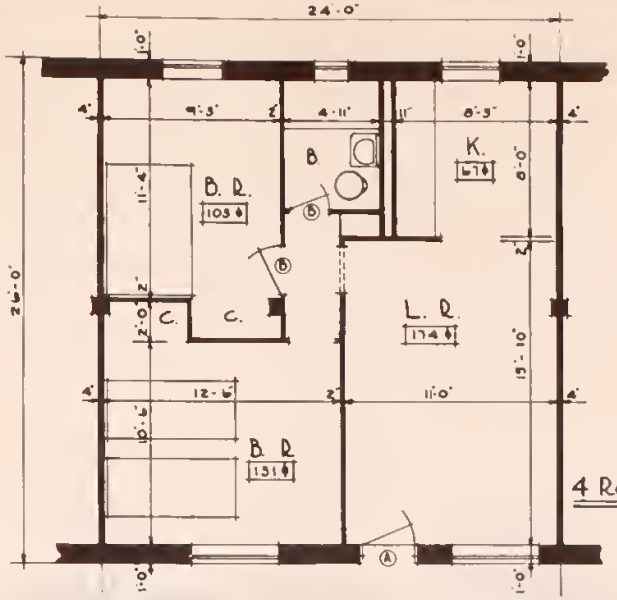
DIRECTOR OF HOUSING
JANUARY 30, 1935

PLAN NUMBER
HD-47

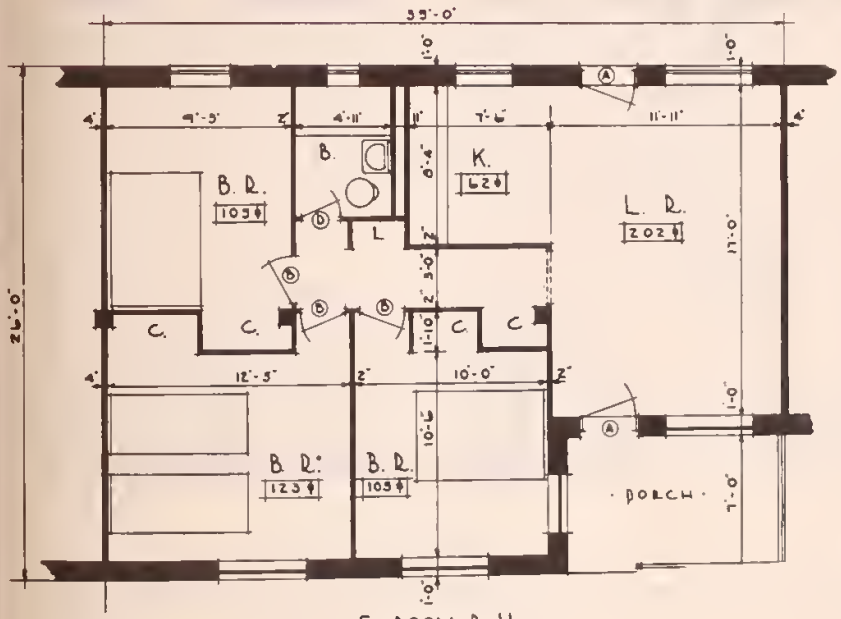
REMARKS

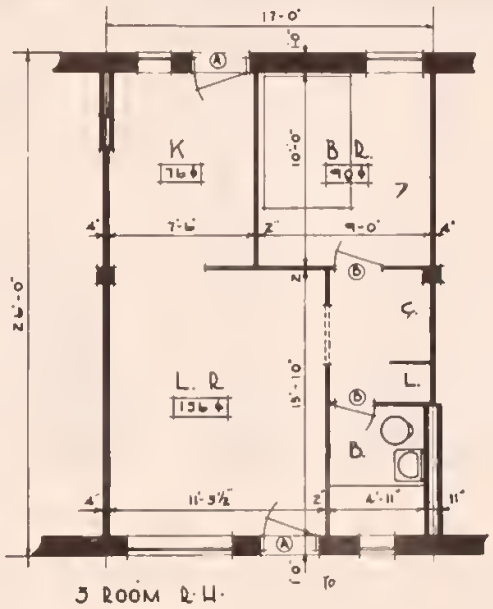
1. Title. One-story row houses of 2, 3, 4, and 5 rooms.
2. Type of plan: Ribbon unit.
3. Characteristics:
   - (a) A row house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - * (d) Used as a ribbon, with basements optional.
4. General:
   - (a) Efficient plumbing layout with stacks grouped.
   - (b) Units can be reversed.

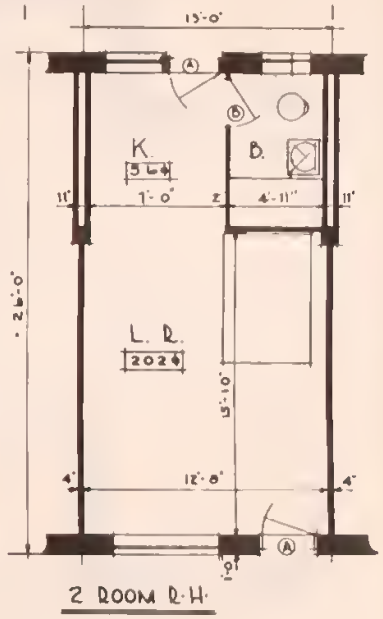


STATISTICS

Descriptive Item	Unit Used	Quantities			
		2-Room	3-Room	4-Room	5-Room
Number of rooms in unit	Rooms	2	3	4	5
Total occupancy	Persons	4	5	5	7
Total gross area	Square feet	338	442	624	830
Average gross room area	Square feet	169	147	156	166
Total net area	Square feet	258	322	477	597
Average net room area	Square feet	129	107	119	119
Percent efficiency gross vs. net area.	Percent	76.3	72.8	76.4	71.9
Outside wall per room					
With no end wall	Lineal feet	13' 0"	11' 4"	12' 0"	13' 3"
Interior partitions per room	Lineal feet	22' 6"	23' 10"	23' 6"	22' 8"
Closet space per room	Lineal feet	..	2' 4"	2' 8"	3' 11"
Arrangement of plumbing stacks.	Number	½ B ½ K	½ B ½ K	1 B/K	1 B/K







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0 1 2 3 4 5 10
SCALE IN FEET

HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

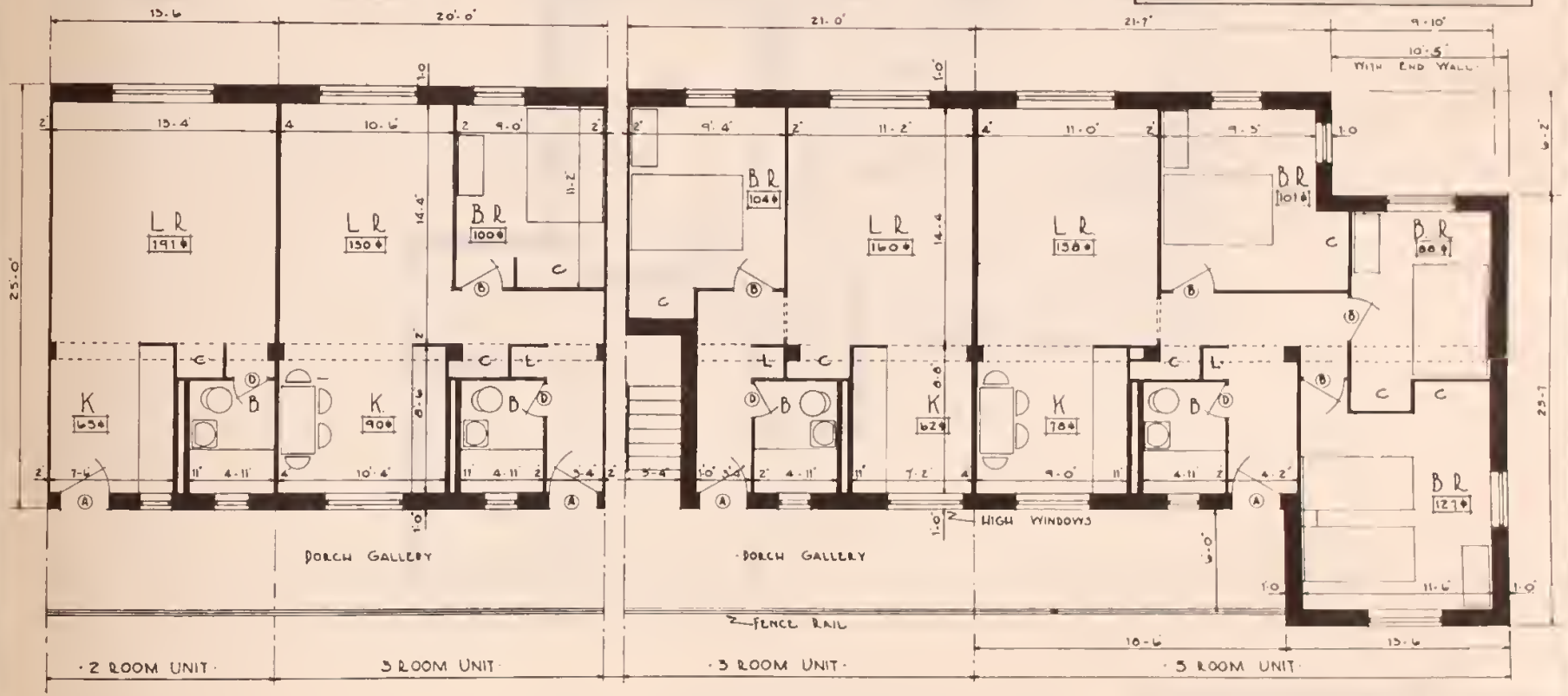
PLAN NUMBER
HD-60

REMARKS

1. Title: 2-, 3-, and 5-room units.
2. Type of plan: Ribbon unit with gallery.
3. Characteristics
   - (a) An apartment house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a ribbon.
4. General:
   - (a) Porch gallery area not included in computations.
   - (b) Secondary rooms face gallery with major rooms on opposite side.
   - (c) 2-room unit entered through kitchen.
   - (d) Efficient plumbing layout with stacks grouped
   - (e) A highly efficient unit regarding stairs, one stair serving many units.

STATISTICS

Descriptive Item	Unit Used	Quantities			
		2 Room	3 Room	4 Room	5 Room
Number of rooms in unit	Rooms	2	3	3	5
Total occupancy	Persons	4	5	5	7
Total gross area	Square feet	338	400	525	827
Average gross room area	Square feet	169	167	175	165
Total net area	Square feet	256	340	326	552
Average net room area	Square feet	128	113	109	110
Percent efficiency gross vs. net area	Percent	75.7	66.0	62.1	66.8
Outside wall per room:					
(a) With no end wall	Lineal feet	13' 6"	13' 4"	17' 5"	15' 5"
(b) Including end wall	Lineal feet				20' 1"
Interior partitions per room	Lineal feet	24' 0"	26' 2"	24' 5"	22' 0"
Closet space per room	Lineal feet	1' 4"	3' 8"	3' 4"	3' 7"
Arrangement of plumbing stacks	Number	1 B/K	1 B/K	1 B/K	1 B/K



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DIRECTOR OF HOUSING
JANUARY 30, 1935

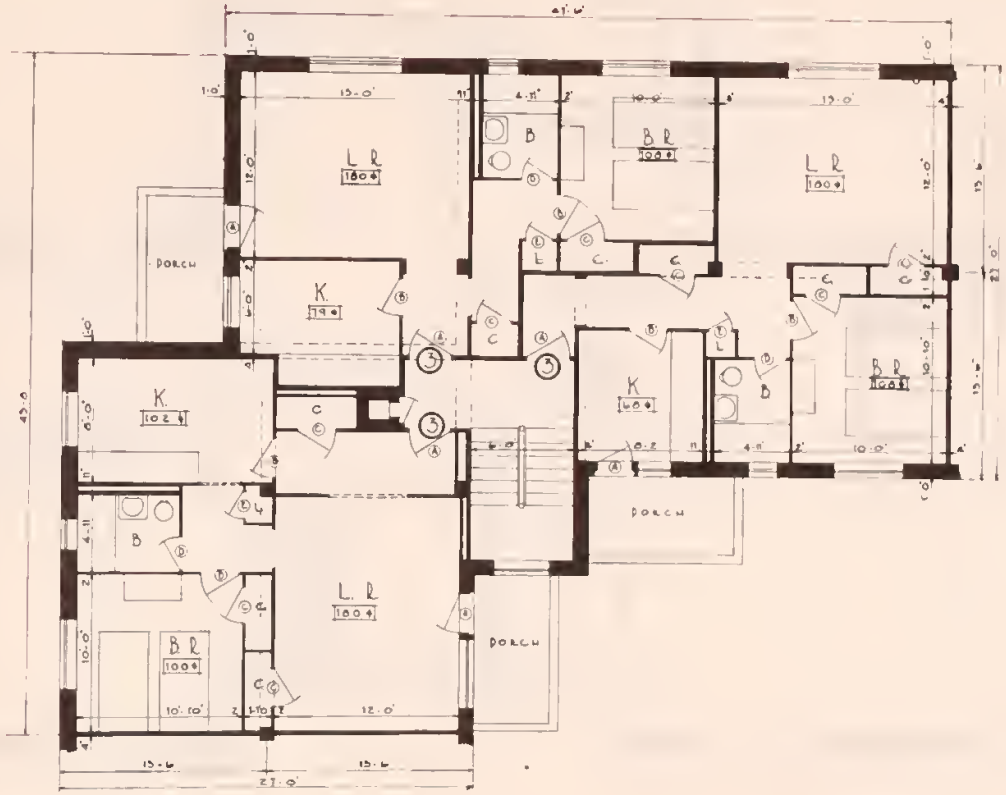
PLAN NUMBER
HD-61

REMARKS

1. Title: 3—3—3 room unit.
2. Type of plan: Corner unit with balconies.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a corner for joining of other plan types.
4. General:
   (a) Porch area not included in computations.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	9
Total occupancy	Persons	9
Total gross area	Square feet	1,873
Average gross room area	Square feet	208
Total net area	Square feet	1,113
Average net room area	Square feet	124
Percent efficiency—gross vs. net area	Percent	59.4
Outside wall per room: Including end wall	Lineal feet	16 feet 6 inches
Interior partitions per room	Lineal feet	36 feet 3 inches
Stairs and incinerators	Number per room	1/9
Closet space per room	Lineal feet	5 feet
Arrangement of plumbing stacks	Number	2 B/K 1 K 1 B



UNIT 3 – 3 – 3

0 1 2 3 4 5 10

SCALE IN FEET

UNITED STATES
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HAROLD L. ICKES - ADMINISTRATOR

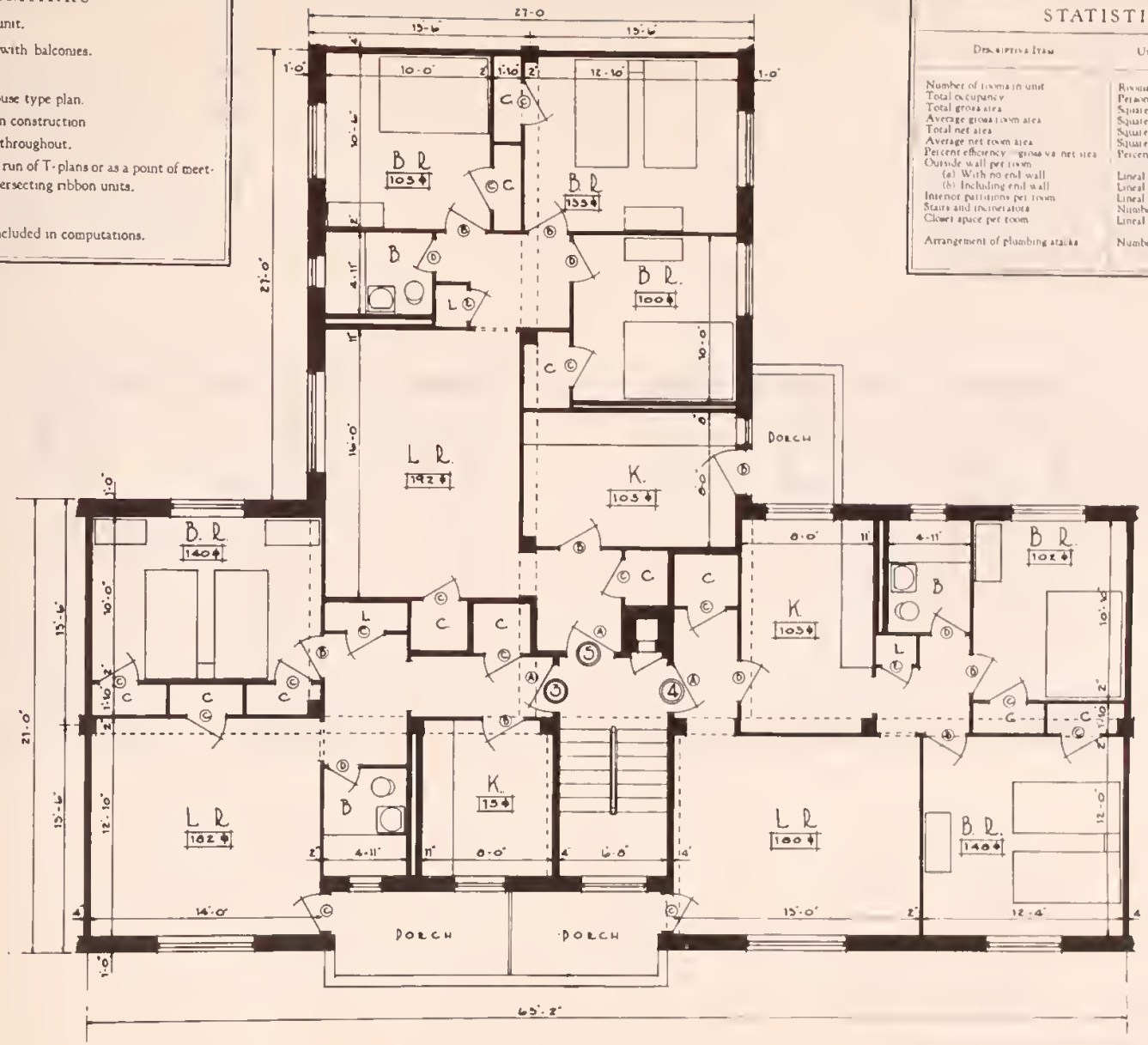
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING

JANUARY 30, 1935

PLAN NUMBER
HD-62

REMARKS

1. Title: 3—5—4-room unit.
2. Type of plan: T-unit with balconies.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction
   (c) Bathrooms same throughout.
   (d) May be used as a run of T-plans or as a point of meeting of three intersecting ribbon units.
4. General:
   (a) Porch area not included in computations.



STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	12
Total occupancy	Persons	15
Total gross area	Square feet	2,363
Average gross room area	Square feet	197
Total net area	Square feet	1,565
Average net room area	Square feet	130
Percent efficiency—gross vs. net area	Percent	66.2
Outside wall per room		
(a) With no end wall	Lineal feet	13 feet 6 inches
(b) Including end wall	Lineal feet	15 feet 7 inches
Interior partitions per room	Lineal feet	24 feet 6 inches
Stairs and incinerators	Number per room	1/12
Closet space per room	Lineal feet	5 feet
Arrangement of plumbing stacks	Number	2 B K 1 K 1 B

UNIT 3 – 5 – 4

0 1 2 3 4 5 10
SCALE IN FEET

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DIRECTOR OF HOUSING
JANUARY 30, 1935

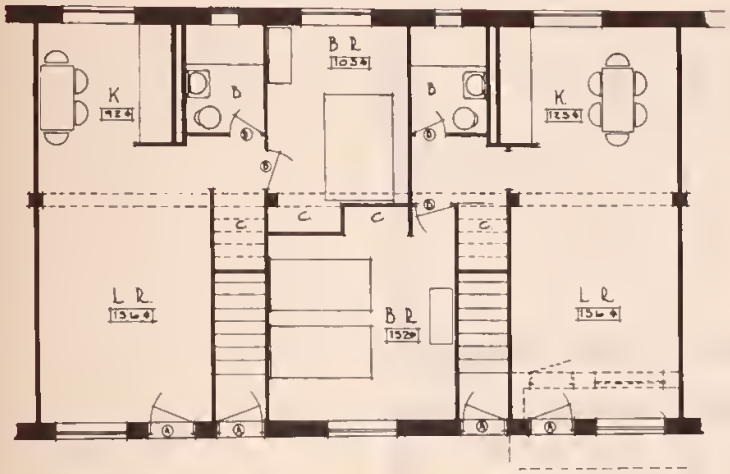
PLAN NUMBER
HD-63

REMARKS

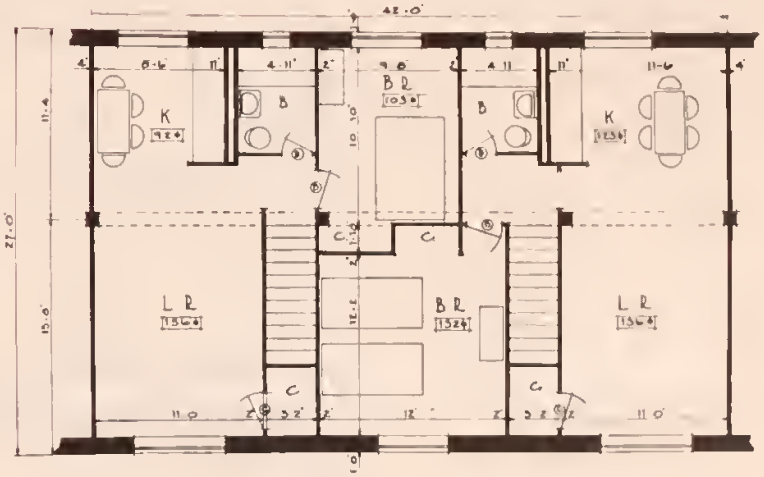
1. Title: 3-room flats.
2. Type of plan: Ribbon unit.
3. Characteristics:
   (a) A 2-story flat house of interlocking type.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon, with basements optional.
4. General:
   (a) Efficient plumbing layout with stacks grouped.
   (b) Units can be reversed.
   (c) Note alternate first-floor plan with porch off of living room.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	12
Total occupancy	Persons	12
Total gross area	Square feet	2,268
Average gross room area	Square feet	189
Total net area	Square feet	1,568
Average net room area	Square feet	131
Percent efficiency—gross vs. net area	Percent	69.1
Outside wall per room		
With no end wall	Lineal feet	14 feet
Interior partitions per room	Lineal feet	29 feet 3 inches
Stairs and incinerators	Number per room	2/12
Closet space per room	Lineal feet	2 feet 6 inches
Arrangement of plumbing stacks	Number	B/K, B/K



FIRST FLOOR



SECOND FLOOR

SCALE IN FEET

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DIRECTOR OF HOUSING
JANUARY 30, 1935

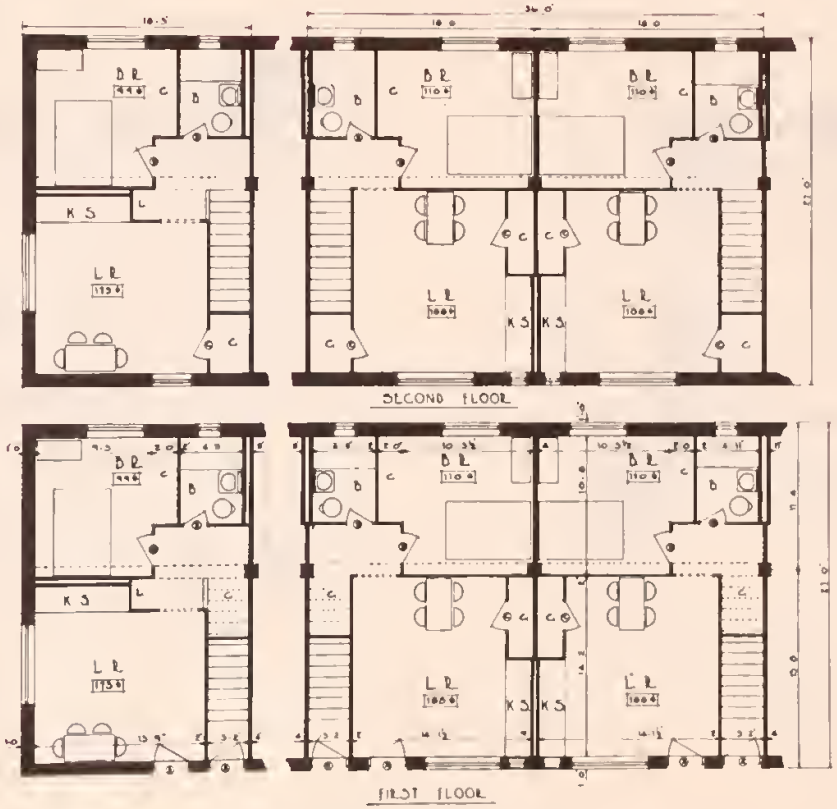
PLAN NUMBER
HD-64

REMARKS

1. Title: 2-room flats.
2. Type of plan: Ribbon unit.
3. Characteristics:
   - (a) A 2-story flat house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a ribbon, with basements optional.
4. General.
   - (a) Efficient plumbing layout with stacks grouped.
   - (b) Average room area increase due to use of strip kitchen.
   - (c) Units can be reversed.

STATISTICS

Descriptive Item	Unit Used	Quantities: End Unit	Quantities: Ribbon Unit
Number of rooms in unit	Rooms	4	8
Total occupancy	Persons	6	12
Total gross area	Square feet	986	1,944
Average gross room area	Square feet	246	243
Total net area	Square feet	544	1,192
Average net room area	Square feet	136	149
Percent efficiency—gross vs. net area	Percent	55.2	61.3
Outside wall per room.			
(a) With no end wall	Lineal feet		18' 0"
(b) With end wall included	Lineal feet	30' 9"	.....
Interior partitions per room	Lineal feet	41' 9"	41' 0"
Stairs and incinerators	Number per room	1/4	2/8
Closet space per room	Lineal feet	5' 0"	4' 9"
Arrangement of plumbing stacks	Number	1 K/K, 1/2 H/H	1 K/K/K, 2—1/2 H/H



SCALE IN FEET

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JANUARY 30, 1935

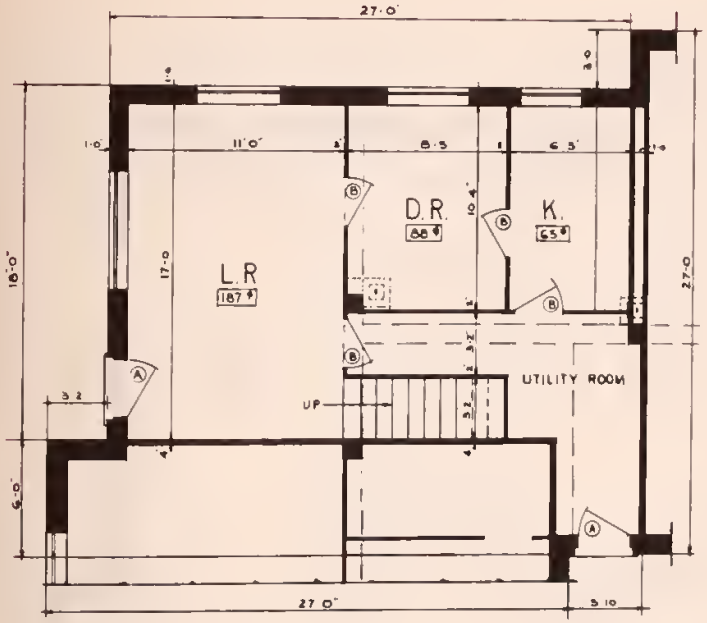
PLAN NUMBER
HD-65

REMARKS

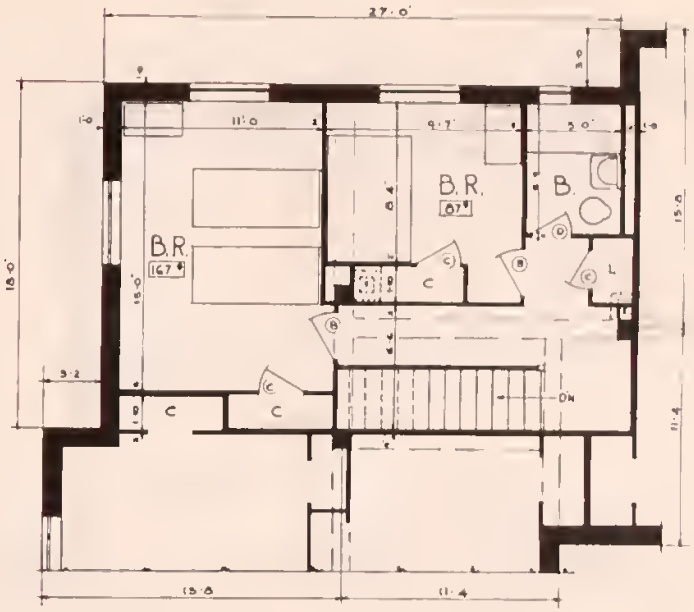
1. Title: 5-room row house.
2. Type of plan: Corner unit.
3. Characteristics:
   - (a) A row house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a corner for joining intersecting ribbons.
4. General:
   - (a) Efficient plumbing layout with stacks grouped.
   - (b) Utility room on first floor may be used for heating or boiler room, or storage space when basement is eliminated.
   - (c) Note entrance into utility room from court side.
   - (d) Direct entry into house through living room.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	5
Total occupancy	Persons	5
Total gross area	Square feet	1,038
Average gross room area	Square feet	208
Total net area	Square feet	593
Average net room area	Square feet	119
Percent efficiency—gross vs. net area	Percent	57.3
Outside wall per room, including end wall	Lineal feet	19 feet 2 inches
Interior partitions per room	Lineal feet	34 feet 7 inches
Stairs	Number per room	1/5
Closet space per room	Lineal feet	3 feet 10 inches
Arrangement of plumbing stacks	Number	1 K/B



FIRST FLOOR PLAN



SECOND FLOOR PLAN

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JANUARY 30, 1935

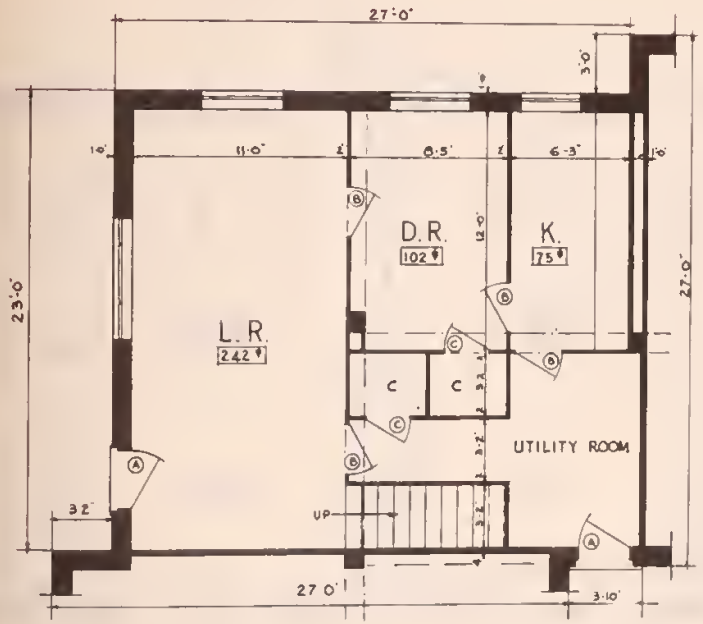
PLAN NUMBER
HD-66

REMARKS

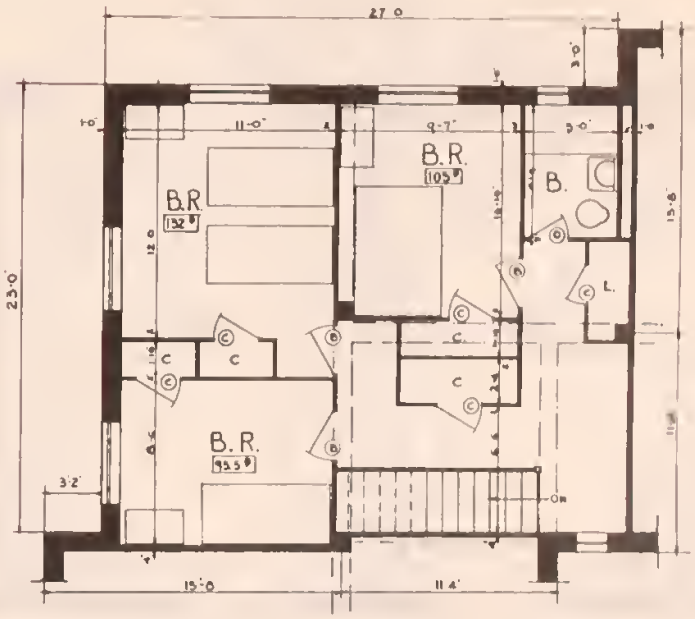
1. Title: 6-room row house.
2. Type of plan: Corner unit.
3. Characteristics:
   - (a) A row house type plan.
   - (b) Off-center column construction.
   - (c) Bathrooms same throughout.
   - (d) Used as a corner for joining intersecting ribbons
4. General:
   - (a) Efficient plumbing layout with stacks grouped.
   - (b) Utility room on first floor may be used for heating or boiler room, or storage space when basement is eliminated. Can be omitted from plan by using this space as a dinette
   - (c) Note entrance into utility room from court side.
   - (d) Direct entry into house through living room.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	6
Total occupancy	Persons	7
Total gross area	Square feet	1,288
Average gross room area	Square feet	215
Total net area	Square feet	750
Average net room area	Square feet	125
Percent efficiency gross vs. net area	Percent	58.2
Outside wall per room: Including end wall	Lineal feet	18 feet 8 inches
Interior partitions per room	Lineal feet	38 feet 10 inches
Stairs	Number per room	1/6
Closet space per room	Lineal feet	5 feet 7 inches
Arrangement of plumbing stacks	Number	1 K/B



FIRST FLOOR PLAN



SECOND FLOOR PLAN

0 1 2 3 4 5 10

SCALE IN FEET

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JANUARY 30, 1935

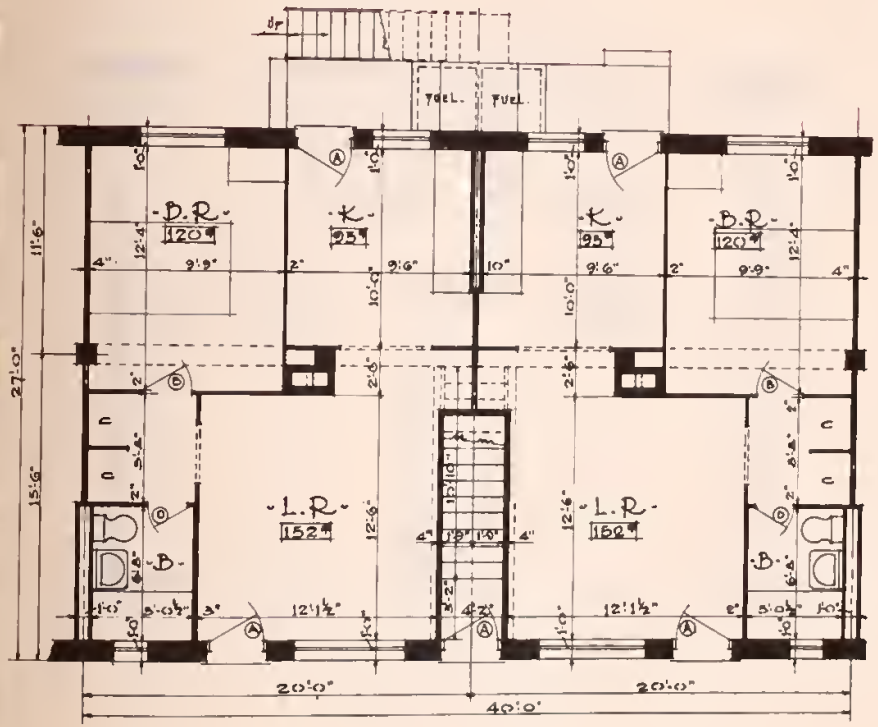
PLAN NUMBER
HD-67

REMARKS

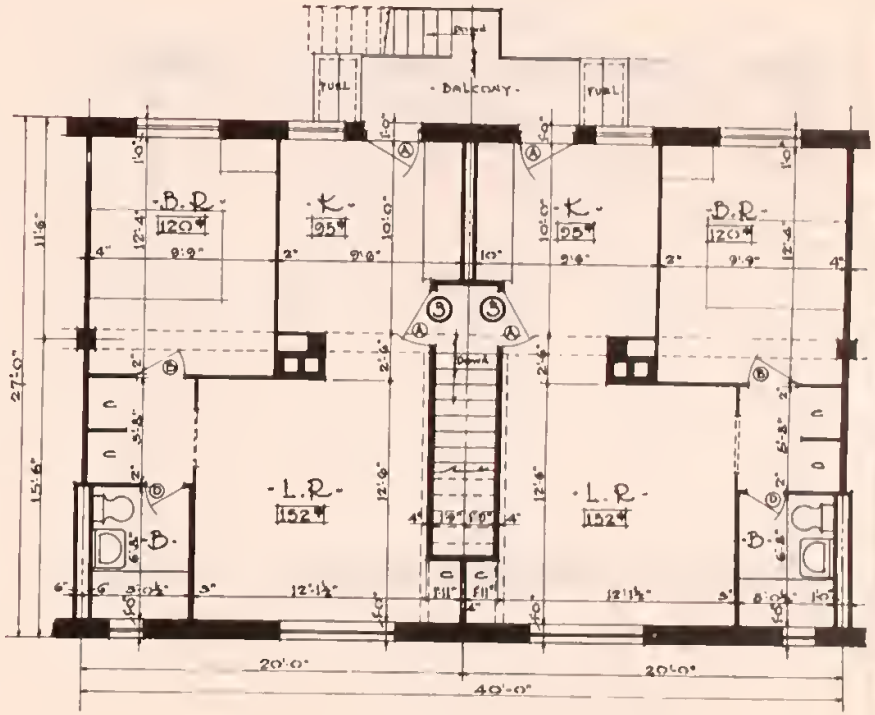
1. Title: 3-room flats.
2. Type of plan: Ribbon unit with rear balconies and stair.
3. Characteristics:
   (a) A flat house type plan.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon, with basements optional.
4. General:
   (a) Efficient plumbing layout with stacks grouped.
   (b) Due to presence of rear entrance this plan should be used only where stove heat is required.
   (c) Direct entry into first floor flats through living rooms, and into second floor flats through kitchens.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	12
Total occupancy	Persons	12
Total gross area	Square feet	2,160
Average gross room area	Square feet	180
Total net area	Square feet	1,468
Average net room area	Square feet	122
Percent efficiency—gross vs. net area	Percent	68.0
Outside wall per room: With no end wall	Lineal feet	13 feet 4 inches
Interior partitions per room	Lineal feet	30 feet 4 inches
Stairs	Number per room	1/12
Closet space per room	Lineal feet	2 feet 6 inches
Arrangement of plumbing stacks	Number	1 K/K, K/K, B, B



FIRST FLOOR



SECOND FLOOR

0 1 2 3 4 5 10

SCALE IN FEET

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DIRECTOR OF HOUSING

JANUARY 30, 1935

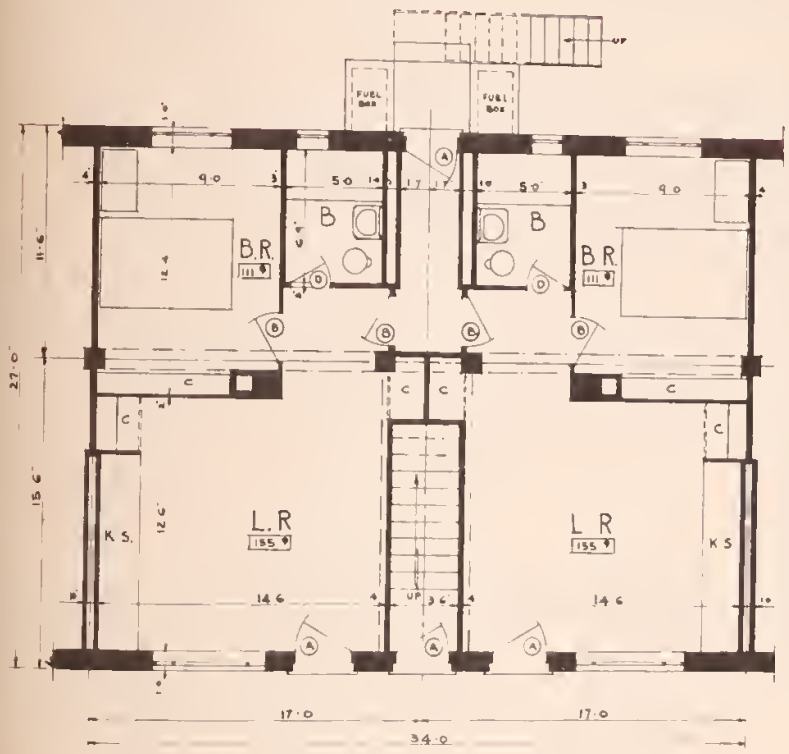
PLAN NUMBER
HD-68

REMARKS

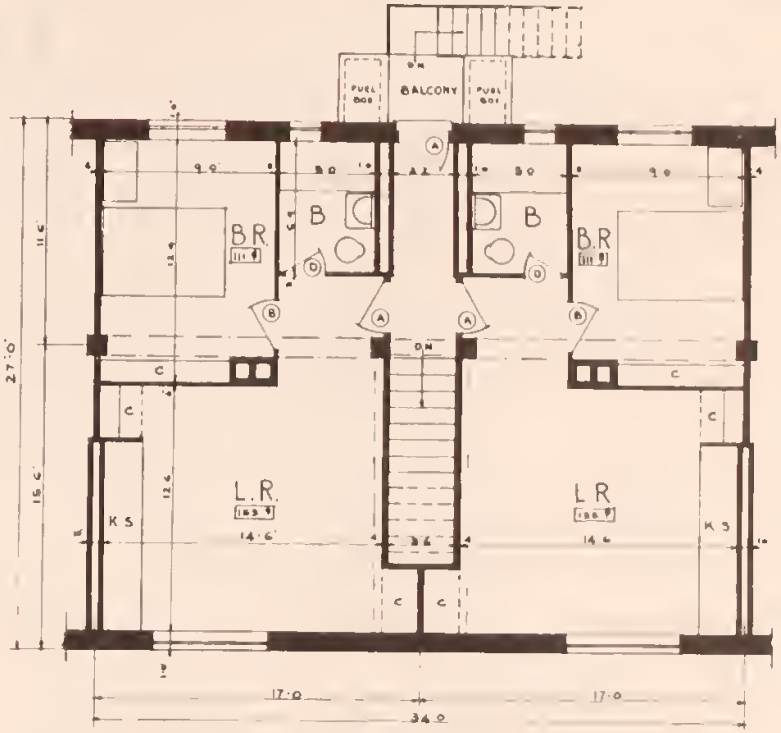
1. Title: 2-room flats.
2. Type of plan: Ribbon unit with rear balconies and stair.
3. Characteristics:
   (a) A flat house type plan with strip kitchens.
   (b) Off-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon, with basements optional.
4. General.
   (a) Inefficient layout for plumbing stacks due to hall separating bathrooms.
   (b) Average room area figure increase due to use of strip kitchens.
   (c) Direct entry into first floor flats through living room.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	8
Total occupancy	Persons	12
Total gross area	Square feet	1,836
Average gross room area	Square feet	229
Total net area	Square feet	1,064
Average net room area	Square feet	133
Percent efficiency gross vs. net area	Percent	58.0
Outside wall per room Including end wall	Lineal feet	17 feet
Interior partitions per room	Lineal feet	41 feet
Stairs	Number per room	1/8
Closet space per room	Lineal feet	3 feet 3 inches
Arrangement of plumbing stacks	Number	2 B, B, K, 2 K



FIRST FLOOR PLAN



SECOND FLOOR PLAN

0 1 2 3 4 5 10

SCALE IN FEET

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HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

PLAN NUMBER
HD-69

· Site Plans ·

The site plan has a twofold purpose: It represents an assemhly of the different types of dwelling units to be used in a project into an architectural and utilitarian grouping, and it depicts the use to be made of open areas into lawns, playgrounds, and the like. A successful site plan is arrived at only as a result of careful study made into many factors characteristic of an individual plot, that will affect the fundamentals of design.

Herewith are presented a few solutions for different plots varying in size and shape. It will be noted that each has been treated quite separately hy taking full advantage of the kind of housing units used, the percentage of land to be huilt upon, and a striving for openness. Other factors, not so readily noticed, are orientation, prevailing winds, and the relation of adjoining property as it affects site conditions.

· NOTES EXPLANATORY OF SITE PLANS ·

In group housing the existing street pattern and the extent to which it can be made a part of a well balanced and properly arranged general site plan is of first importance.

The vacating, dead ending, re-routing, or opening of streets should be given careful study. Street changes carry with them the matters of replacement of sewers, water supply, gas and electric mains, fire hydrants, electric light poles, police, fire, and traffic signal systems, United States mail boxes, each requiring agreements with Federal, State, or city authorities and utility companies, aside from potential trouble arising from protests and claims of contiguous land owners. Obviously, any radical rearrangement of the street pattern must be carefully considered and checked with city planning boards or city officials, so that an agreement may be reached.

After determining the general arrangement of streets and service, the problem is one of correct grouping of unit plans to form an effective architectural composition. As the building unit plan is made up of the various room combinations comprising it, so the site plan is composed of an assemblage of unit plans properly grouped. The site plan must indicate the use to be made of property surrounding the buildings, which in most instances represents about 75 percent of the total land area.

The successful site plan is the result of studied analysis applied to various factors. First the type of prevailing building unit must be determined—either the apartment house, flat, or row house. Experience has shown that a blending of all three is highly desirable in most projects, and where this is done the proportionate amount of each type to be used must be decided upon in advance and which will be the prevailing kind of unit. After this has been worked out the number of stories per structure is then agreed upon along with the amount of basements and penthouses to be used, if any. At this point the placing of the units and grouping of same on the property is approached. This is necessarily influenced by the most efficient use to be made of vacant land surrounding the buildings. Orientation, prevailing winds, topography of land, and drainage should be duly considered as they may seriously affect the ultimate solution. The advice of city planning boards should be obtained in order to tie the site plan in with the city plan.

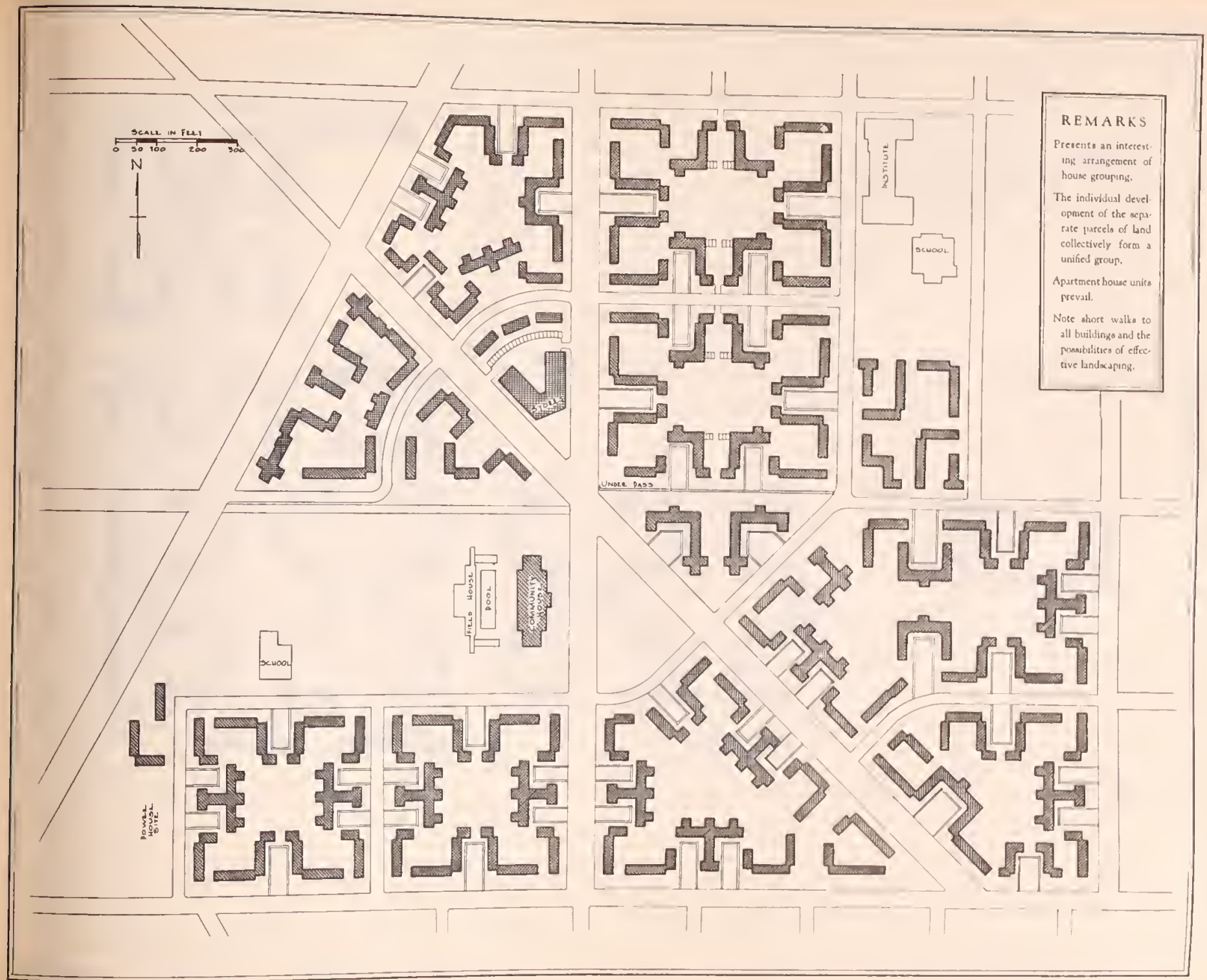
Once the preliminary set-up is complete and the type as well as the amount of building structure has been agreed upon, the subject of landscaping bears attention. In the current low-rent housing projects where the average building coverage represents only one-fourth of the total land area, it is apparent that the development of the remaining land demands careful analysis as to its use. Lawns, play areas, walks and drives, stores, community buildings, and garages are some of the other non-housing features to be considered. The size of the project obviously will determine just how many of these community facilities will be made available in any given development.

It may be stated, therefore, that the site plan is principally the result of a culmination of a series of statistics in relation to a project, all previously worked out, with the variables as noted above having a direct bearing on the location of building with respect to landscaped areas.

In direct contrast to low-rent housing in the past, which has resulted in our existing slum areas, a feeling of openness must be sought. Not only must a large percentage of the land remain unoccupied but in addition to this the buildings have to be placed so as to emphasize this fact. Courts, when used, should be open and wherever possible the general grouping of the buildings should adjoin large parked areas so that no dwelling unit is too far distant from these spaces.

The kind of building unit selected will have a great deal to do with the use to be made of vacant land. Apartment house units naturally lean toward group treatment of open areas into parks, play groups, and the like. The row house, on the other hand, and the flat to a somewhat lesser degree, are more inclined toward individual plot layouts for gardening and private yards. As is well known, a considerable difference exists in landscape maintenance, depending on the use to be made of this land as it is natural that individual yards, maintained by the tenants cost considerably less in maintenance than large public lawns and parks.

A lot of study has been given to low rent housing to date, particularly on matters pertaining to plot plans, and it is found that the same economic principles of good basic design must be carried out in the site plan as is given to the development of the housing units. Efficiency is paramount: Each detail must be weighed for the expense involved in original construction and in maintenance charges.



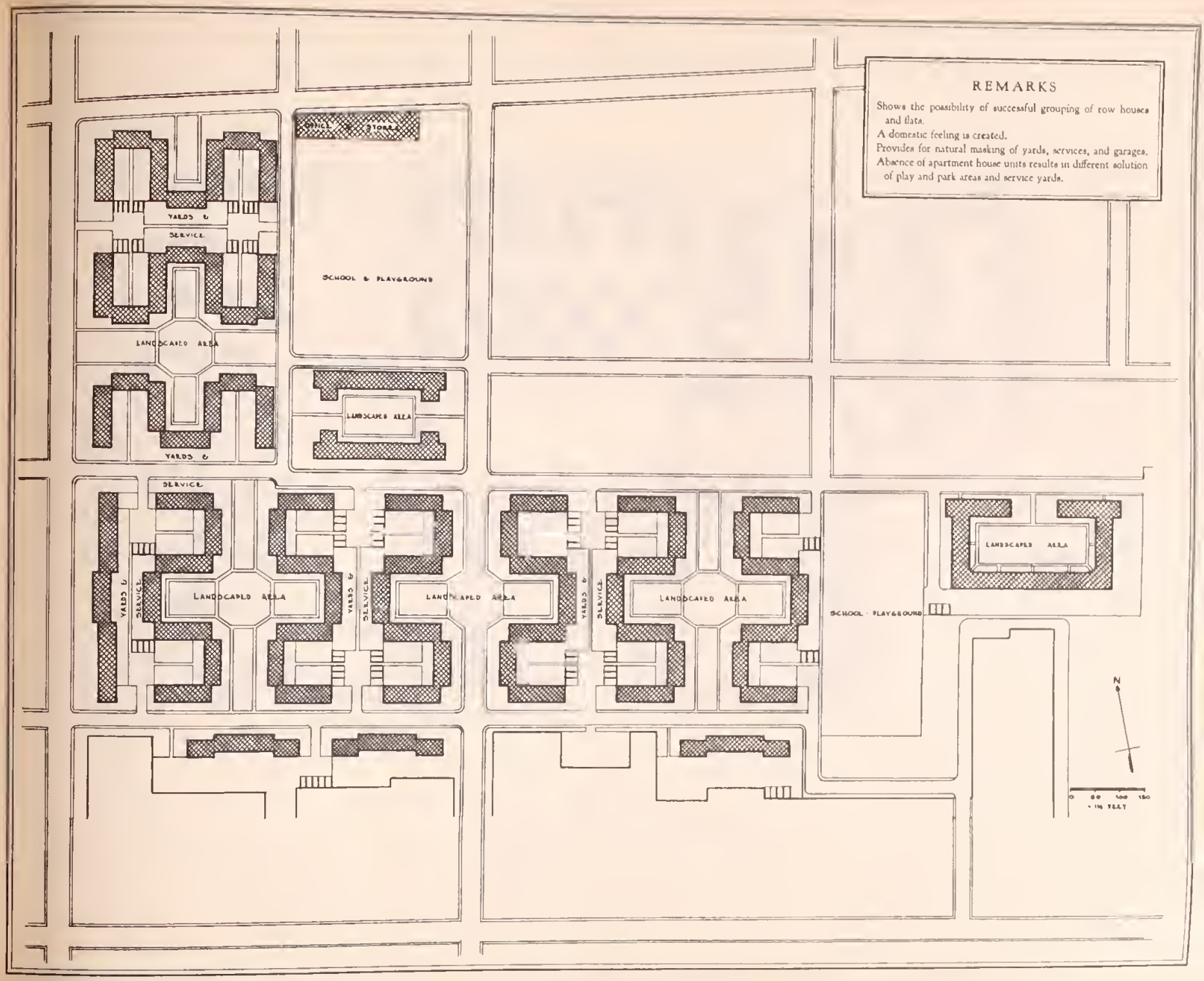
REMARKS

Presents an interesting arrangement of house grouping.

The individual development of the separate parcels of land collectively form a unified group.

Apartment house units prevail.

Note short walks to all buildings and the possibilities of effective landscaping.


REMARKS
Shows the possibility of successful grouping of row houses and flats.
A domestic feeling is created.
Provides for natural masking of yards, services, and garages.
Absence of apartment house units results in different solution of play and park areas and service yards.
OFFICE & STORES
SCHOOL & PLAYGROUND
YARDS &
SERVICE
LANDSCAPED AREA
LANDSCAPED AREA
YARDS &
SERVICE
YARDS &
SERVICE
LANDSCAPED AREA
YARDS &
SERVICE
LANDSCAPED AREA
YARDS &
SERVICE
LANDSCAPED AREA
SCHOOL - PLAYGROUND
LANDSCAPED AREA
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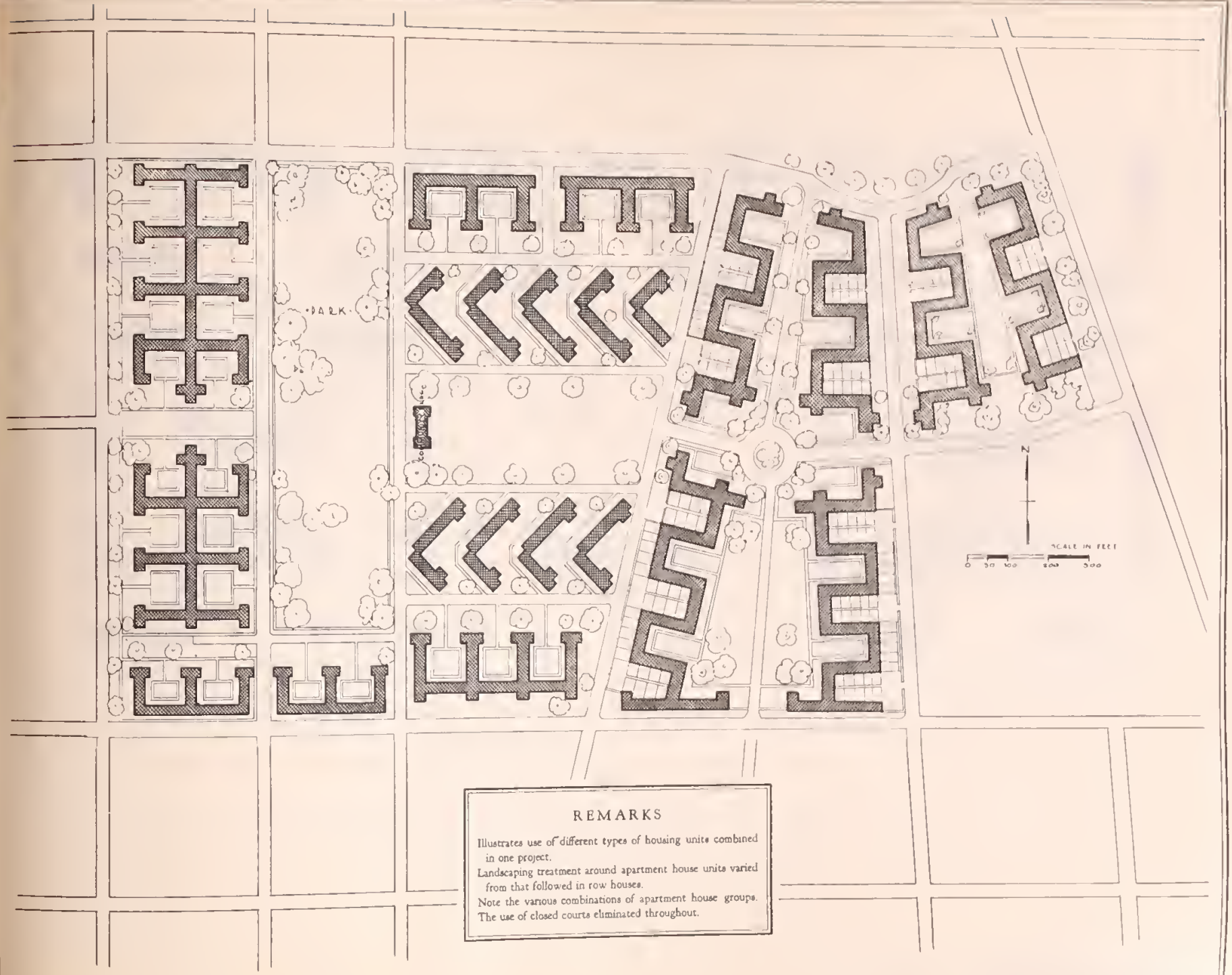


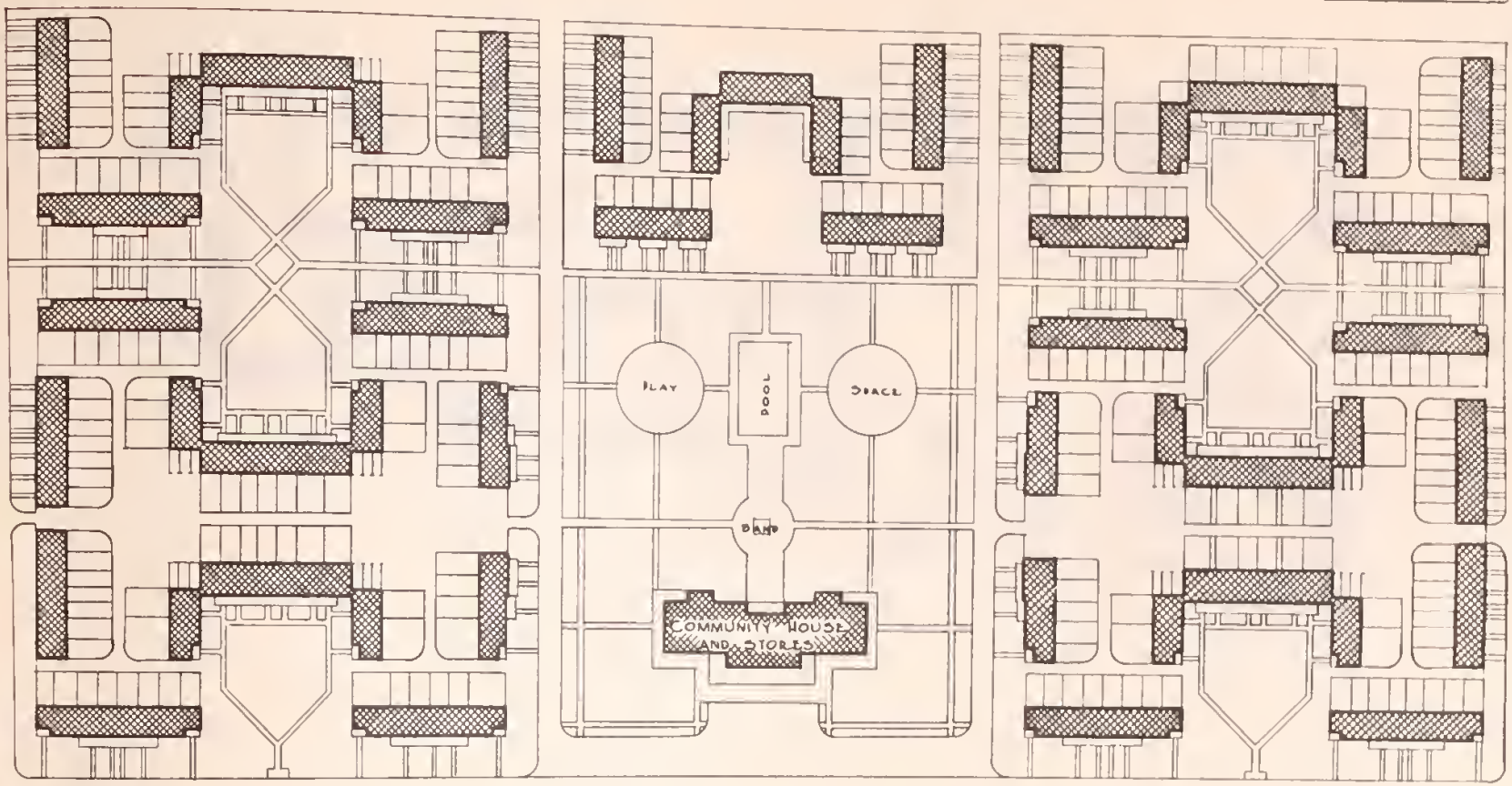
REMARKS

Illustrates use of different types of housing units combined in one project.

Landscaping treatment around apartment house units varied from that followed in row houses.

Note the various combinations of apartment house groups.

The use of closed courts eliminated throughout.



REMARKS

Shows the possibility of creating an interesting site plan out of a row house development.

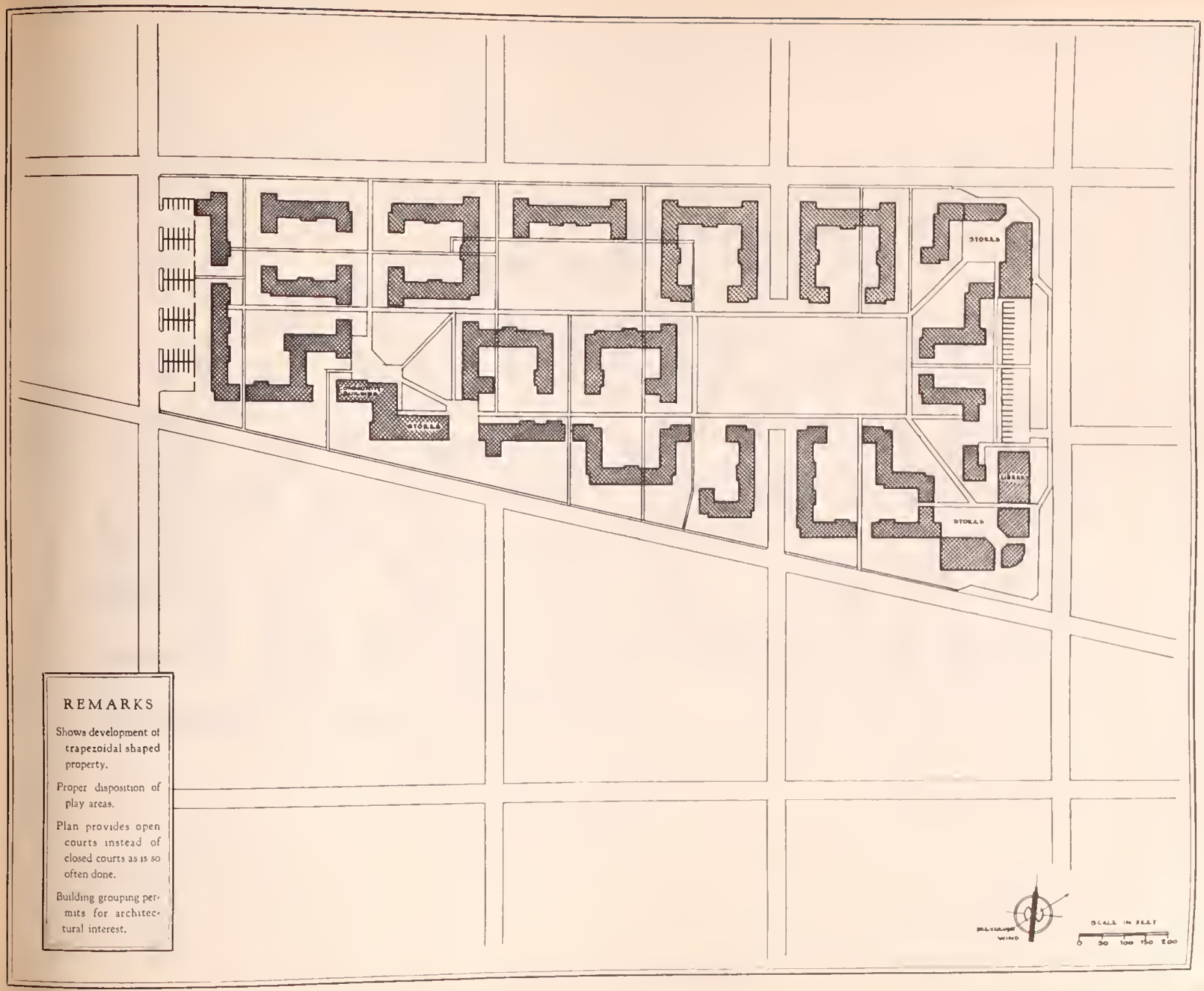
The relation of service areas to landscaped areas should be noted.

This method of grouping houses is economical and efficient.

Charm and domesticity emphasized.

SCALE IN FEET

0 40 80 160 240



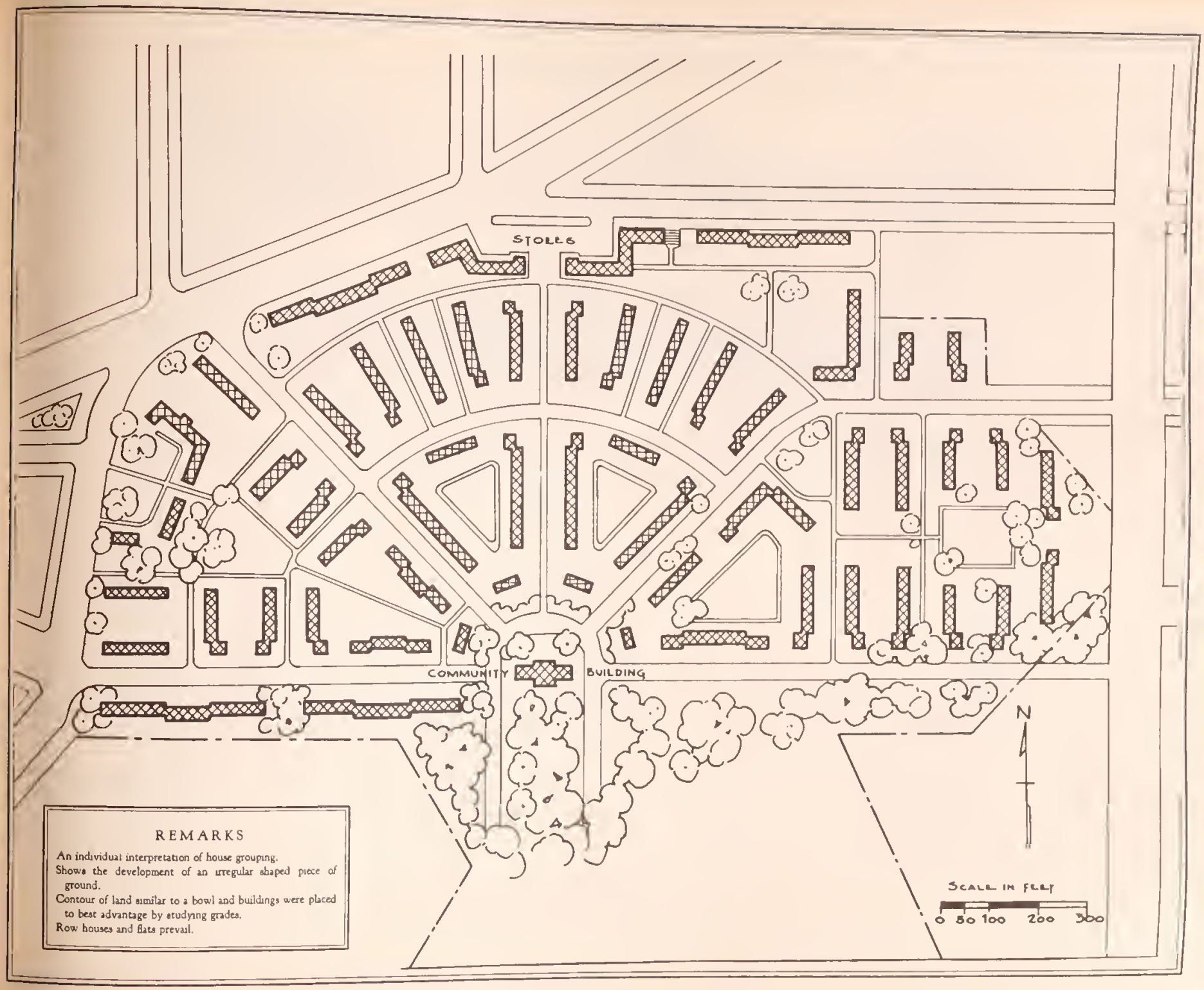
REMARKS

Shows development of trapezoidal shaped property.

Proper disposition of play areas.

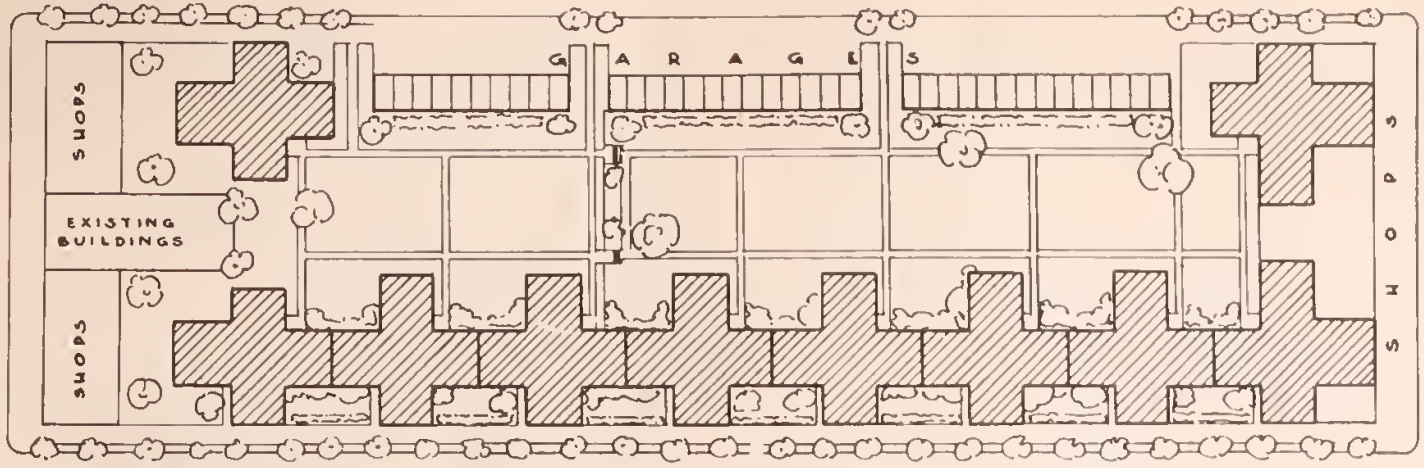
Plan provides open courts instead of closed courts as is so often done.

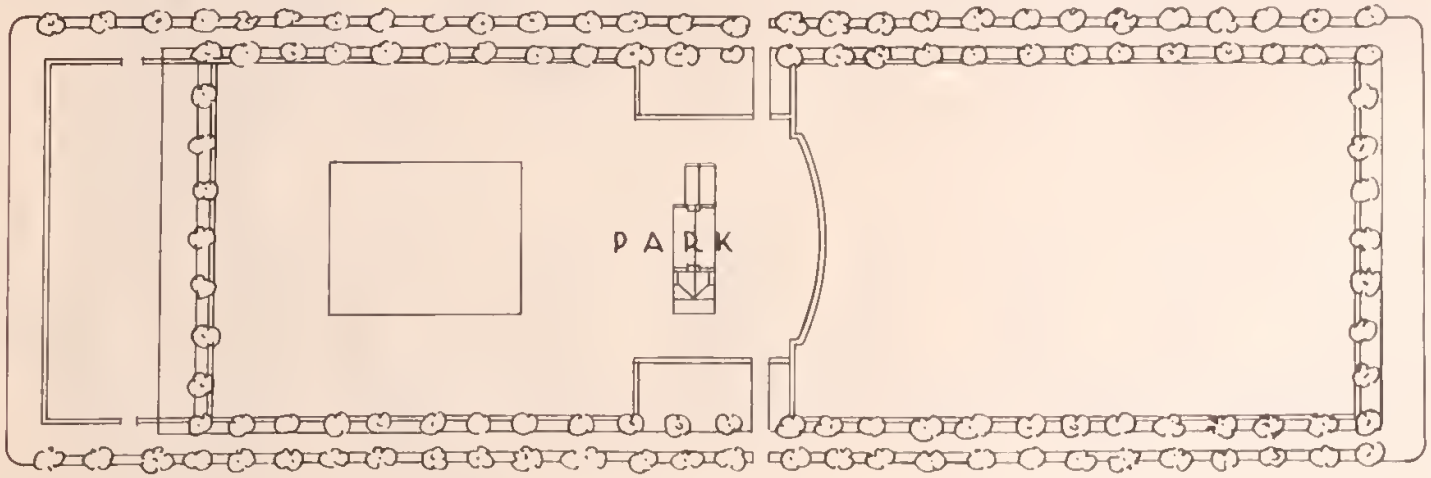
Building grouping permits for architectural interest.

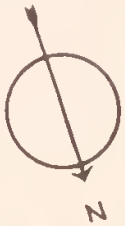


REMARKS

An individual interpretation of house grouping.
Shows the development of an irregular shaped piece of ground.
Contour of land similar to a bowl and buildings were placed to best advantage by studying grades.
Row houses and flats prevail.

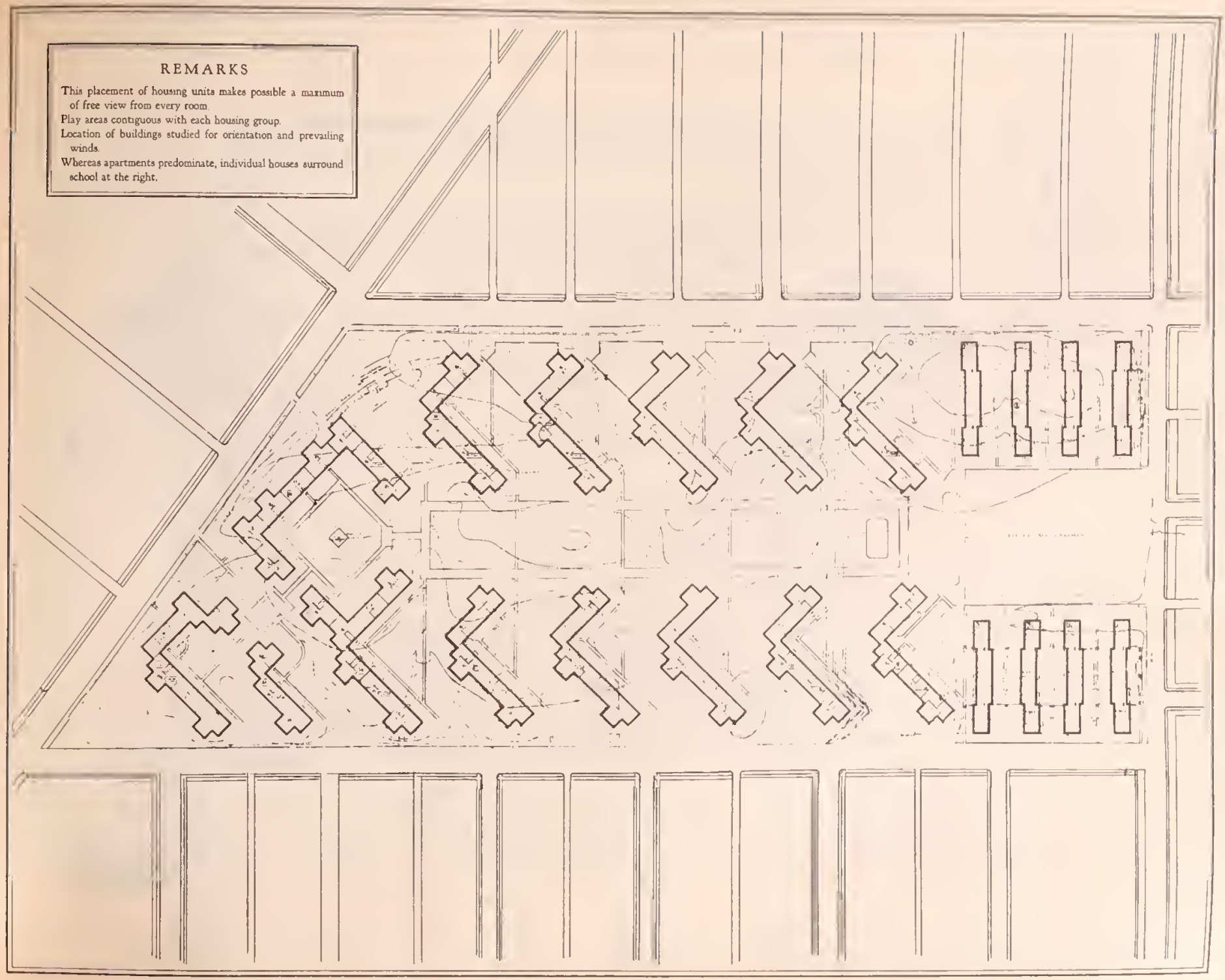


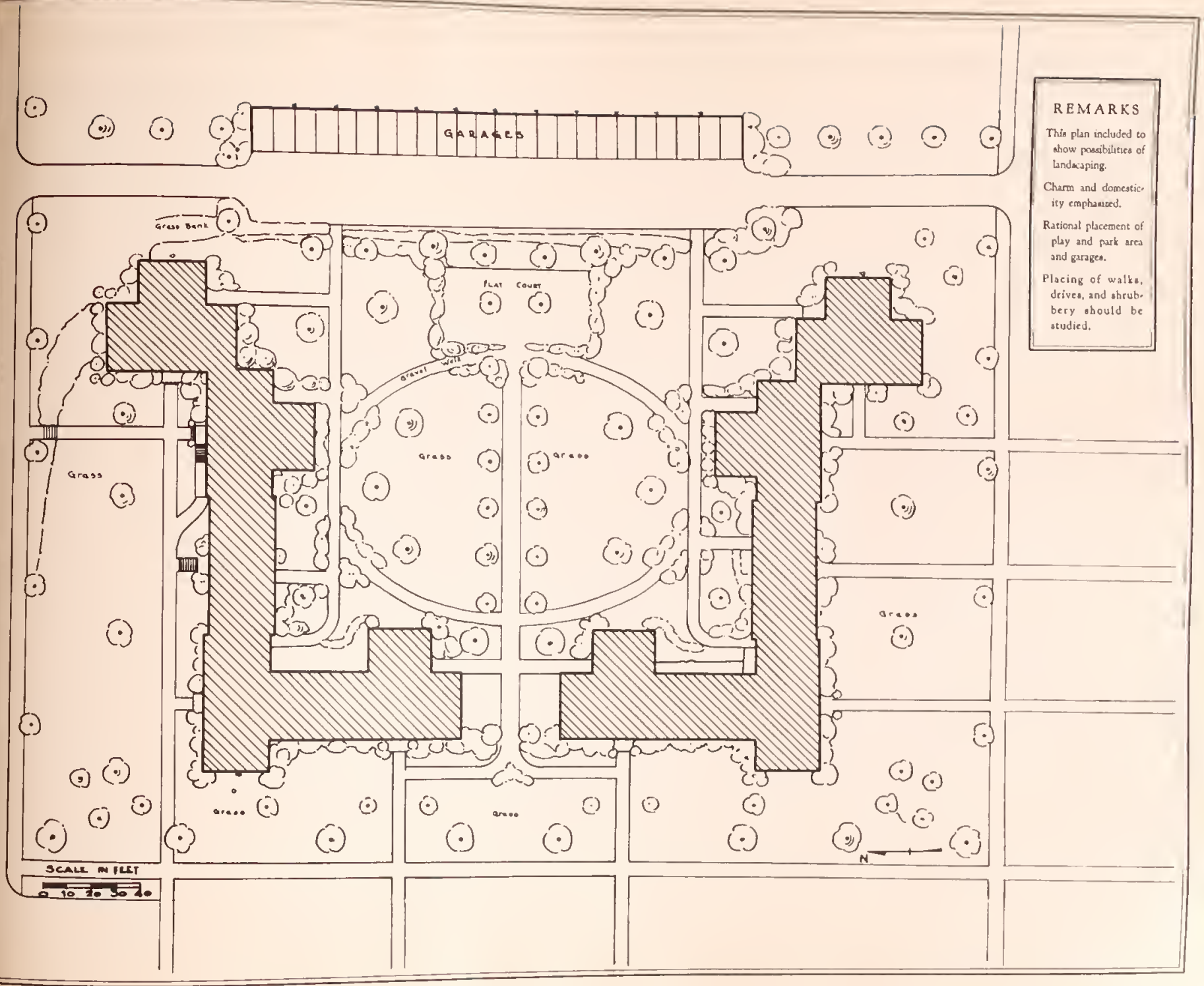




REMARKS

Illustrates how a long and narrow lot may be treated to provide open spaces.
Note that block is not completely enclosed as is often done
Site plan exemplifies development of the cross plan.
Placing of garages and shops should be noted.


REMARKS
This placement of housing units makes possible a maximum of free view from every room.
Play areas contiguous with each housing group.
Location of buildings studied for orientation and prevailing winds.
Whereas apartments predominate, individual houses surround school at the right.



REMARKS

This plan included to show possibilities of landscaping.

Charm and domesticity emphasized.

Rational placement of play and park area and garages.

Placing of walks, drives, and shrubbery should be studied.

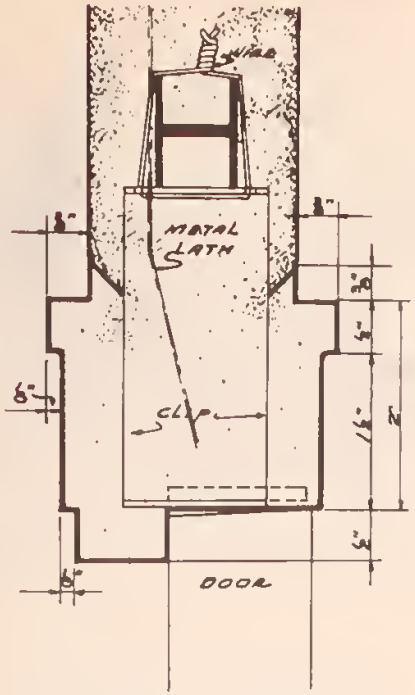
· DETAILS ·

A complete treatise on the subject of details would fill many volumes—therefore no attempt has been made in this book to thoroughly cover this phase of low-rent housing except in a most condensed manner. It was felt, however, that the information contained in the following sheets was so expressive as to its intent, that it was well deserving of mention.

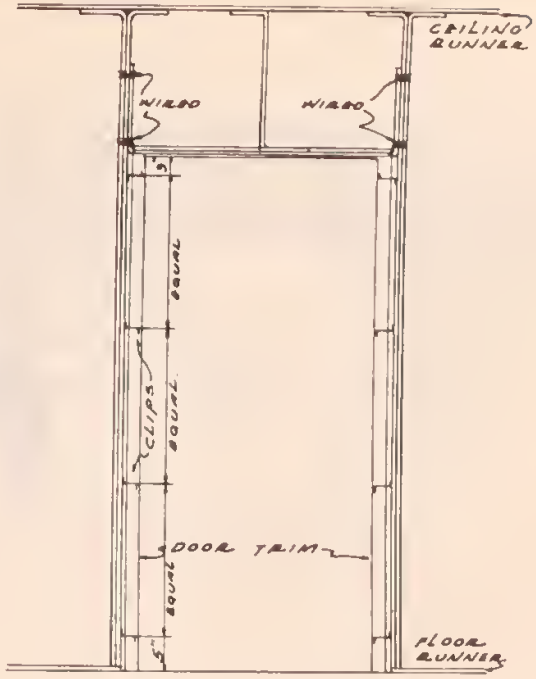
CONSTRUCTION DETAILS (Detail Sheets Nos. 1–10). These typical drawings are presented to assist the architect in formulating concise ideas on the important subject of details pertaining to construction. The particular drawings selected were chosen without regard to any one system of building or type of materials to be used. It will be noted that simplicity of design and soundness of structure are basic qualities desired.

STRUCTURAL DESIGN DETAILS (Detail Sheets Nos. HD 101–HD 116). These details represent the result of comprehensive research applied to the field of structural design and present definite conclusions both in the efficiencies of building and economy of design. The creating of the drawings here presented was brought about through the apparent need of furnishing the architect with standardized details of structural design based on combined study over a long period. Methods of building differ in various parts of the country and it is not the intention of the Housing Division to limit types and methods of construction. Rather, the selection of the type of structural frame is within the scope of work of the architect, subject to the approval of the Division. It is to be expected that the Nation-wide investigation of materials and methods now being conducted by the Housing Division will eventually add further contributions to this subject.

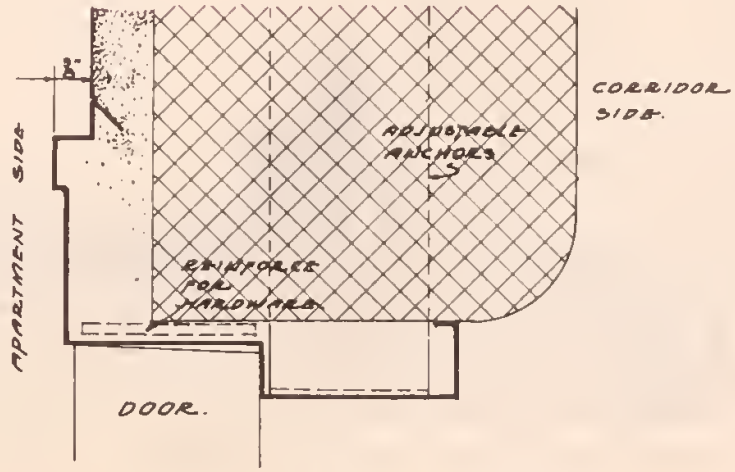
ARCHITECTURAL DESIGN—COMPARATIVE SHEETS (Nos. 1 and 2). The underlying purpose in presenting these comparative pages, as is most apparent, is to point out two radically different solutions to the same detail. One is distinctly expressive of low-rent housing in that every line conveys basic economy while expressing mass beauty, whereas the other sheet may be classed as an "architectural masterpiece" not in the least characteristic of the purpose for which it was created. An intense study of these two drawings will greatly assist the architect in forming conclusions on this all-important matter of architectural detail. Low-rent housing demands mass design rather than expensive architectural ornamentation in order to be successful in low rentals as well as in meritorious character of style.



DOOR JAMB.
SOLID PLASTER PARTITION.



ELEVATION OF FRAMING
AT DOORS.



DOOR JAMB. APARTMENT ENTRANCES.

DOOR TRIM DETAILS

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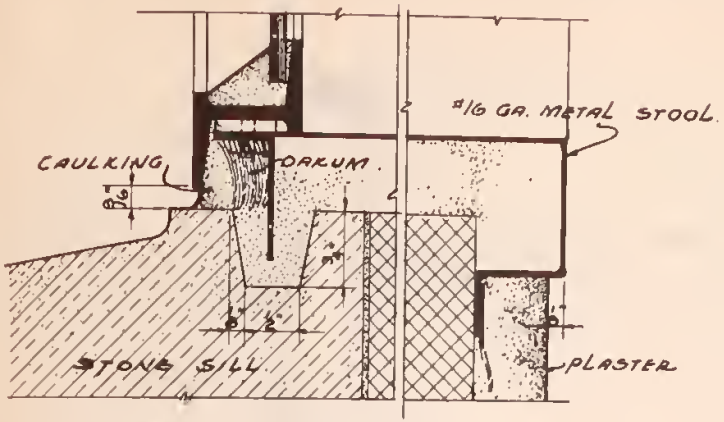
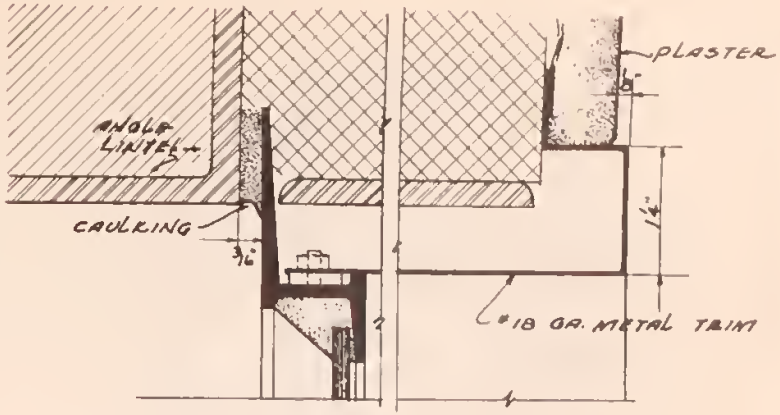
HAROLD L. ICKES - ADMINISTRATOR

HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

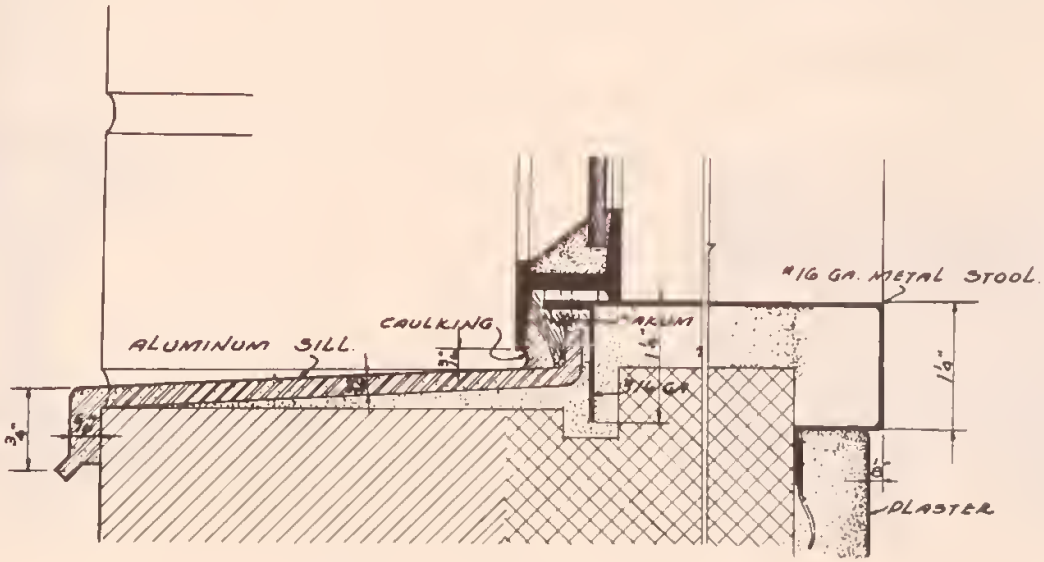
DETAIL SHEET
No. 1



SECTION THRU STONE SILL.



SECTION THRU HEAD JAMB



SECTION THRU ALUMINUM SILL.

WINDOW DETAILS (CONTINUED)

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HOUSING DIVISION
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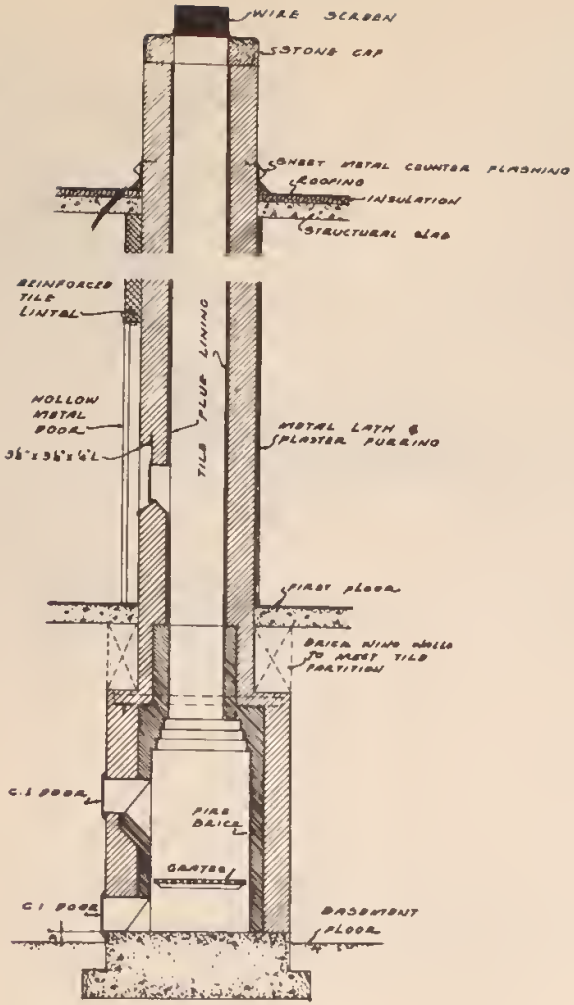
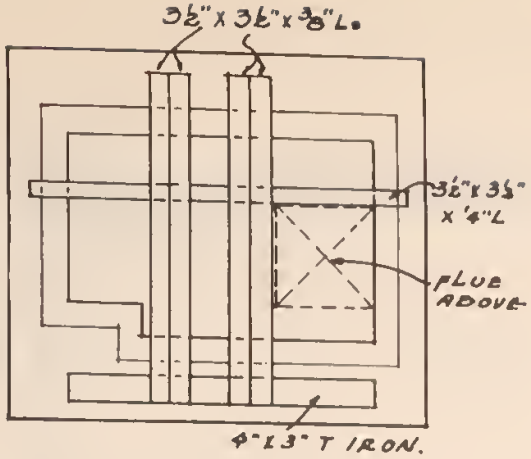
JANUARY 30, 1935

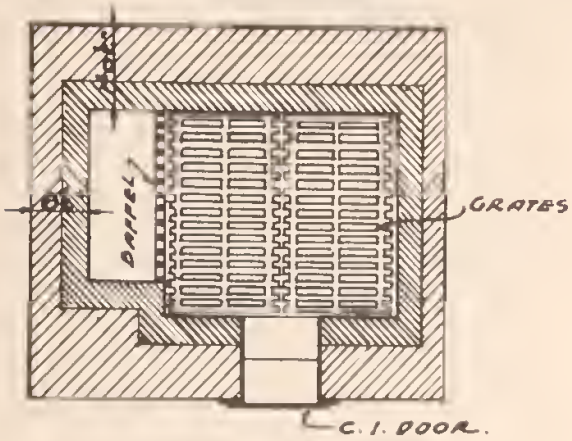
DETAIL SHEET No. 3



SECTION.



FRAMING PLAN



PLAN AT GRATES

INCINERATOR DETAILS

UNITED STATES
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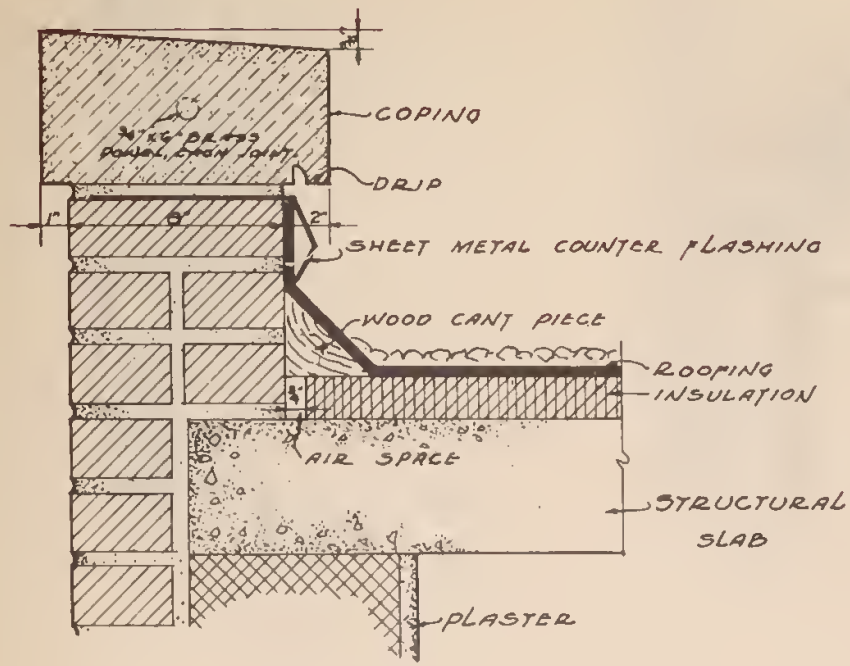
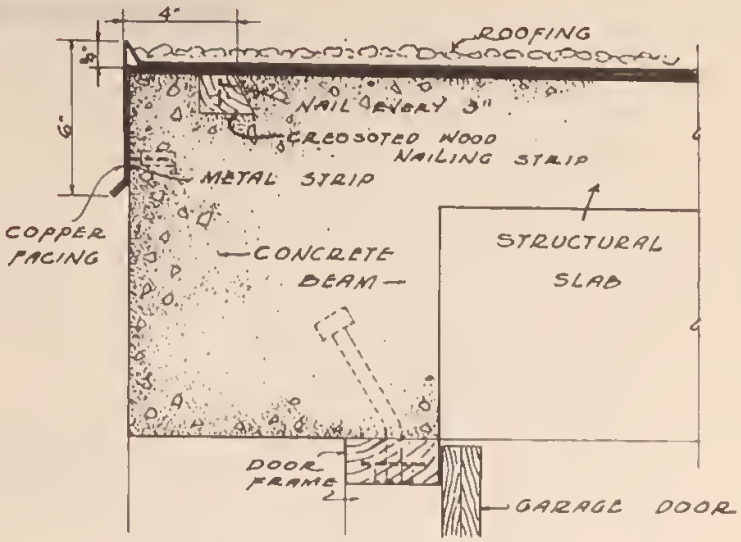
HOUSING DIVISION	DETAIL SHEET
HORATIO B. HACKETT DIRECTOR OF HOUSING JANUARY 30, 1935	No. 4



PARAPET WALL DETAIL.
USING STONE OR CAST STONE COPING.



METAL EAVE DETAIL.
FOR GARAGES.

PARAPET AND EAVE DETAILS

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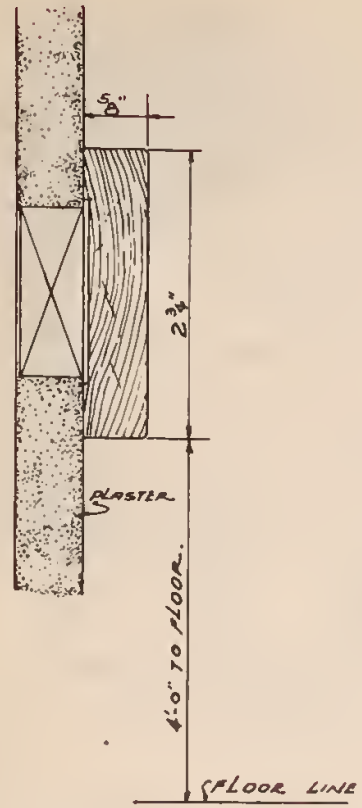
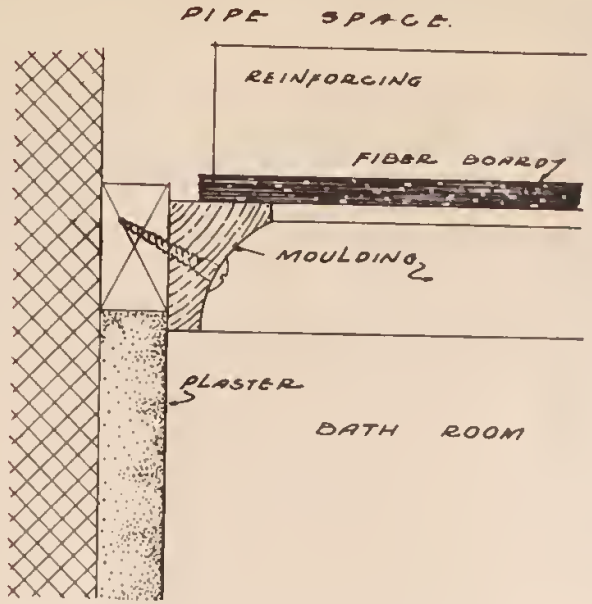
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

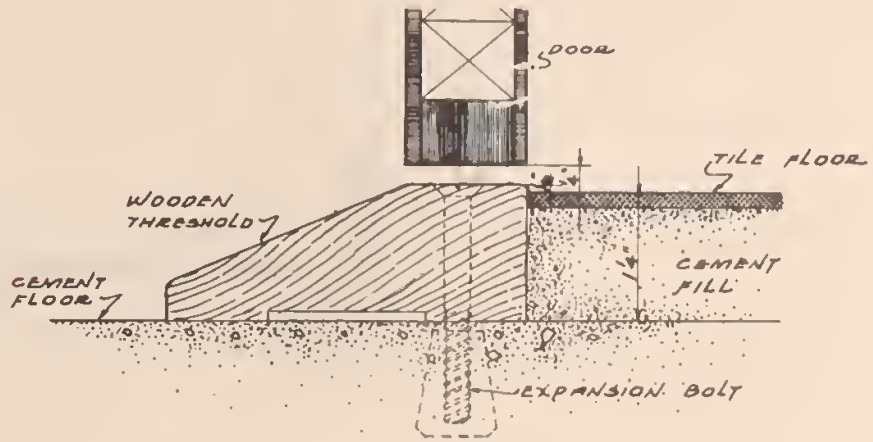
DETAIL SHEET
No. 5



SECTION THRU HOOK STRIP



DETAIL OF SUSPENDED CEILING.



SECTION THRU THRESHOLD.

BATHROOM DETAILS

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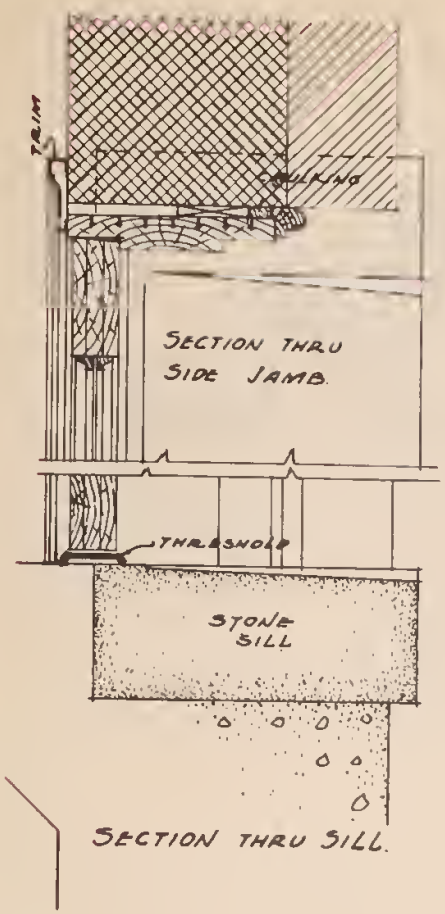
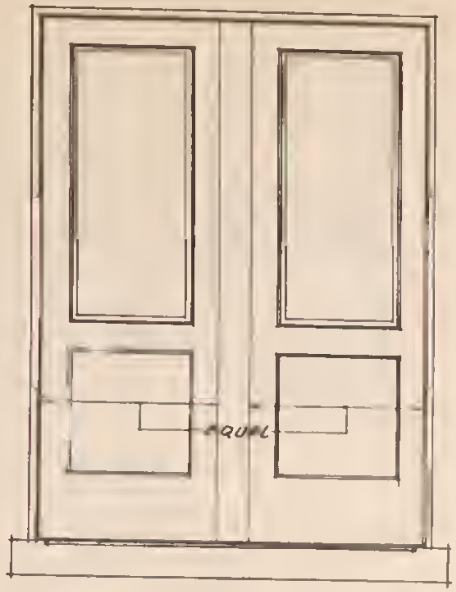
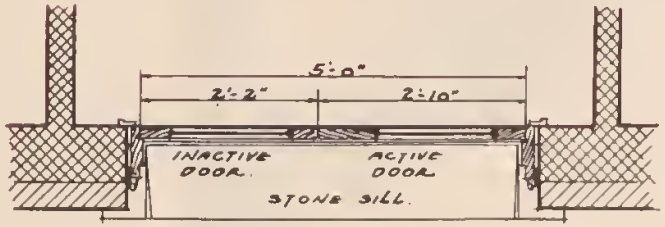
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

DETAIL SHEET
No. 6





ELEVATION



PLAN

FRONT ENTRANCE DOOR DETAILS

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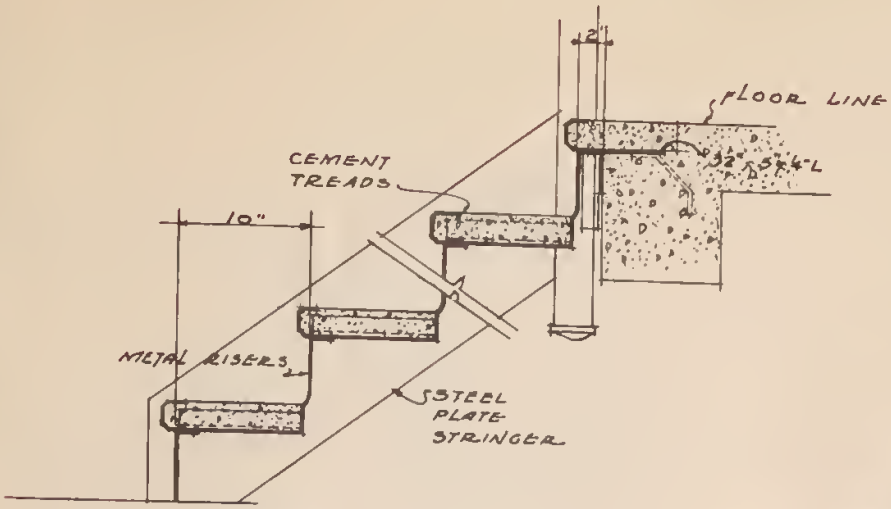
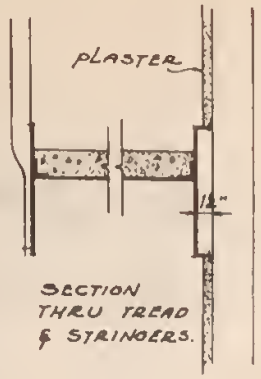
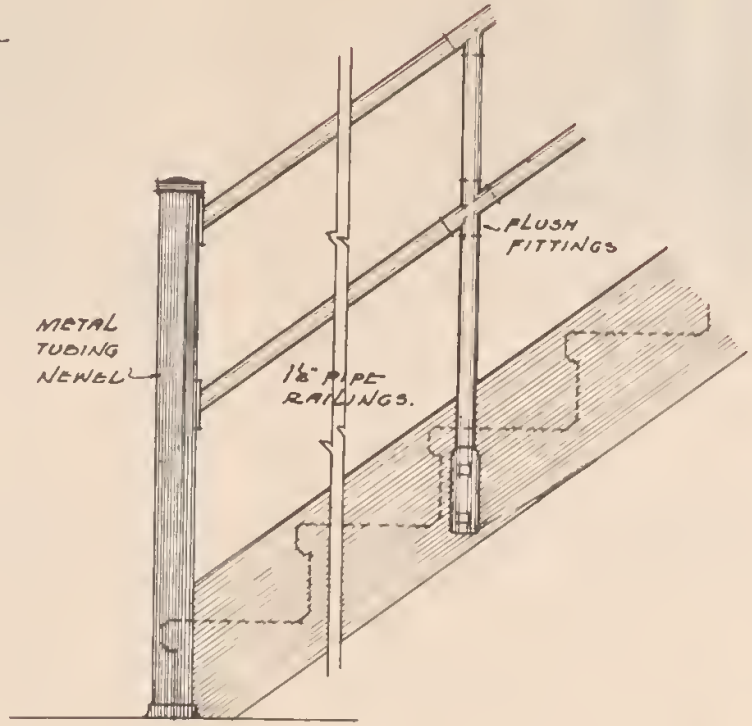
HOUSING DIVISION	DETAIL SHEET
HORATIO B. HACKETT DIRECTOR OF HOUSING JANUARY 30, 1935	No. 7



PART SECTION





PART ELEVATION

STAIR DETAILS

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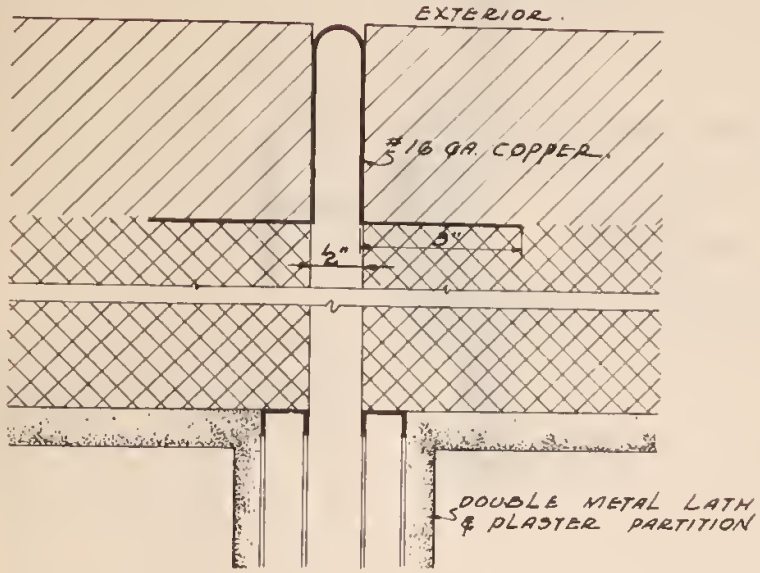
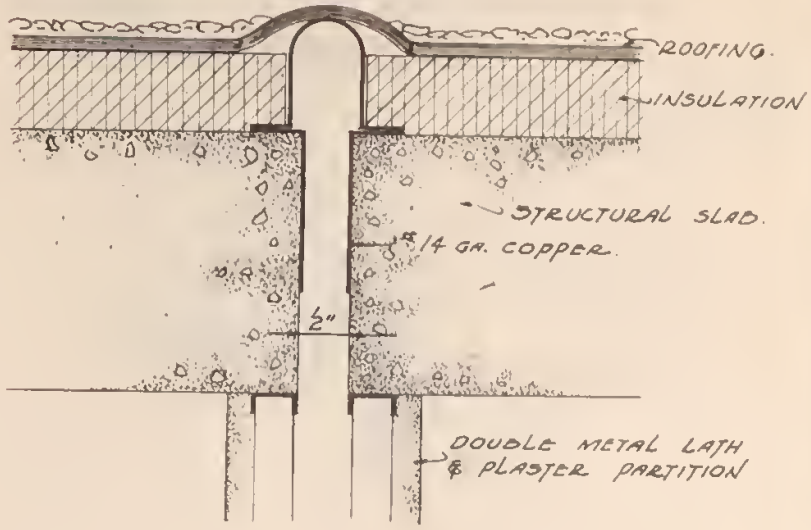
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

DETAIL SHEET
No. 8



SECTION THRU EXTERIOR WALL.



SECTION THRU ROOF

EXPANSION JOINT
DETAILS

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HOUSING DIVISION
HORATIO B. HACKETT
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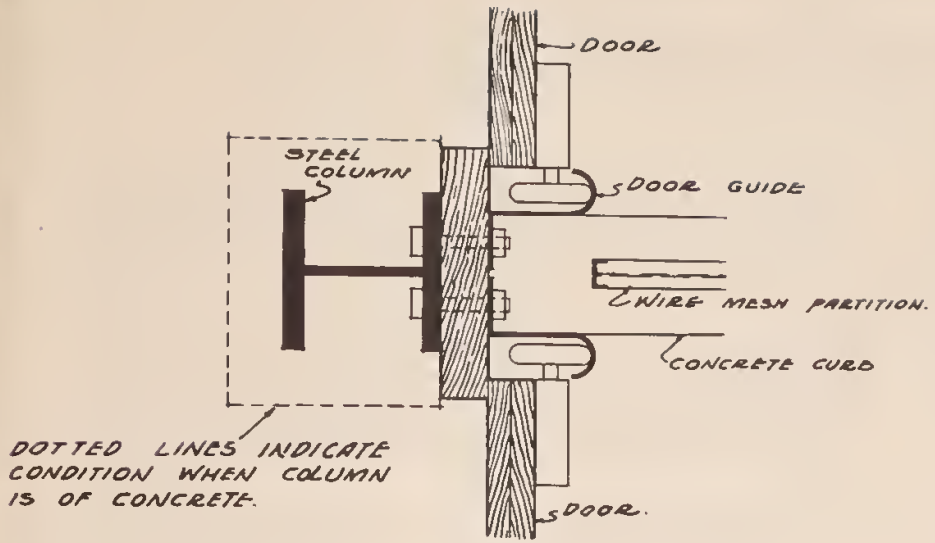
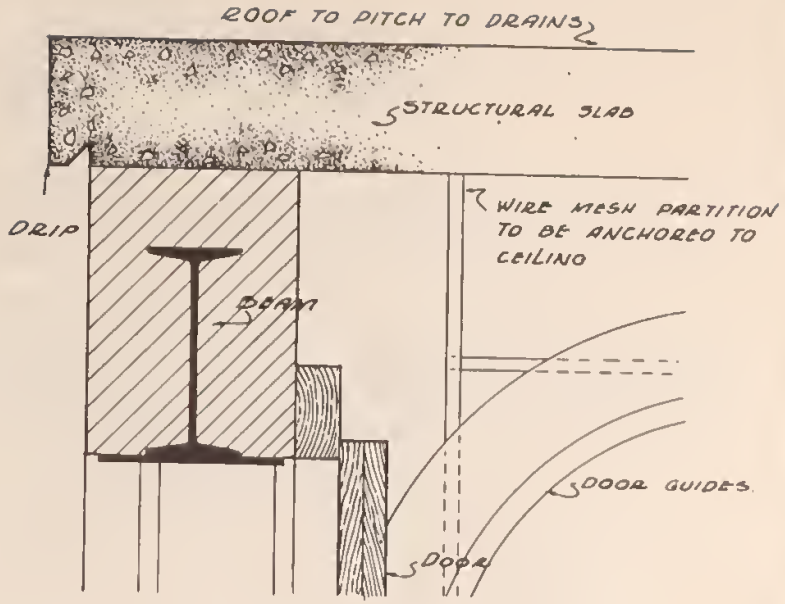
DETAIL SHEET
No. 9



DETAIL AT EXTERIOR COLUMNS.



SECTION THRU HEAD JAMB AND EAVE

GARAGE DETAILS

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HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
JANUARY 30, 1935

DETAIL SHEET
No. 10

EXPLANATORY NOTES
ON STRUCTURAL DESIGN DETAILS

It is the intention of the Housing Division to conform, in general, with local building codes, restrictions, and regulations. The architect is expected to inform the Housing Division of any provisions of the local code that are at variance with the American Concrete Institute, American Institute of Steel Construction, the Federal specifications, or the Housing Division standards.

In making studies of the type of structural frame to be used in a project, the architect shall prepare at least three comparative designs of floor construction. Each design shall be of the same typical area of sufficient size to give an accurate comparison between each type of construction, and the following information must be incorporated as a part of each method suggested:

(1) Framing plans and sections for the floors and roof of the area selected showing—
  (a) Slab thicknesses, joist, beam, and column sizes, and story heights;
  (b) Spacing, size, and bending of slab, joist, beam and column reinforcing;
  (c) Temperature steel;
  (d) Accessories required for supporting reinforcing steel.

(2) Typical column and wall footing showing—
  (a) Size and approximate footing elevation for estimating purposes;
  (b) Size, number, and bending of reinforcing bars.

(3) Strength of concrete to be used.

(4) Suspended ceilings, direct plastered ceilings, and direct painted ceilings.

Upon receipt of approval, the architect shall take off the quantities of concrete, form work, reinforcing steel, structural steel, plaster, painting, tile fillers, additional masonry walls, if the floor is thicker than solid slab type, and any other materials that enter into the cost of the various types of construction. Then the architect shall obtain, from at least three responsible contractors, unit construction costs based on the approved drawings. The total costs and cost per square foot of each material for every type of construction selected shall be computed from the architect's quantity survey and the contractor's unit prices. Two copies of these costs and contractor's units shall be submitted to the Housing Division by the architect, along with his comments on the costs and suitability of the various types of construction.

Consideration must be given to the availability and practicability of local materials, and while concrete has thus far proven itself most suitable for use, all other materials and methods must be duly studied. It should therefore be explained that whereas the details illustrated in this book are mostly based on concrete construction, the leanings in the Division are, by no means, partial to any one material.

In the design of reinforced concrete, certain basic standards have been drawn. The more important of these are as follows:

(1) All concrete shall be 2,000-pound concrete, unless otherwise noted;

(2) Concrete slabs to be poured monolithic with beams and girders;

(3) All cement floor finishes shall be placed monolithic with concrete slabs;

(4) Concrete covering for reinforcing steel shall be a minimum of ¾ inch for slabs, 1½ inches for soffits and 1 inch for sides of beams and girders, 1½ inches for columns, and 3 inches for footings;

(5) All footings and retaining walls shall rest on original earth, unless shown otherwise;

(6) Where slabs rest on fill, fill must be made by tamping, rolling, and puddling in 6-inch layers;

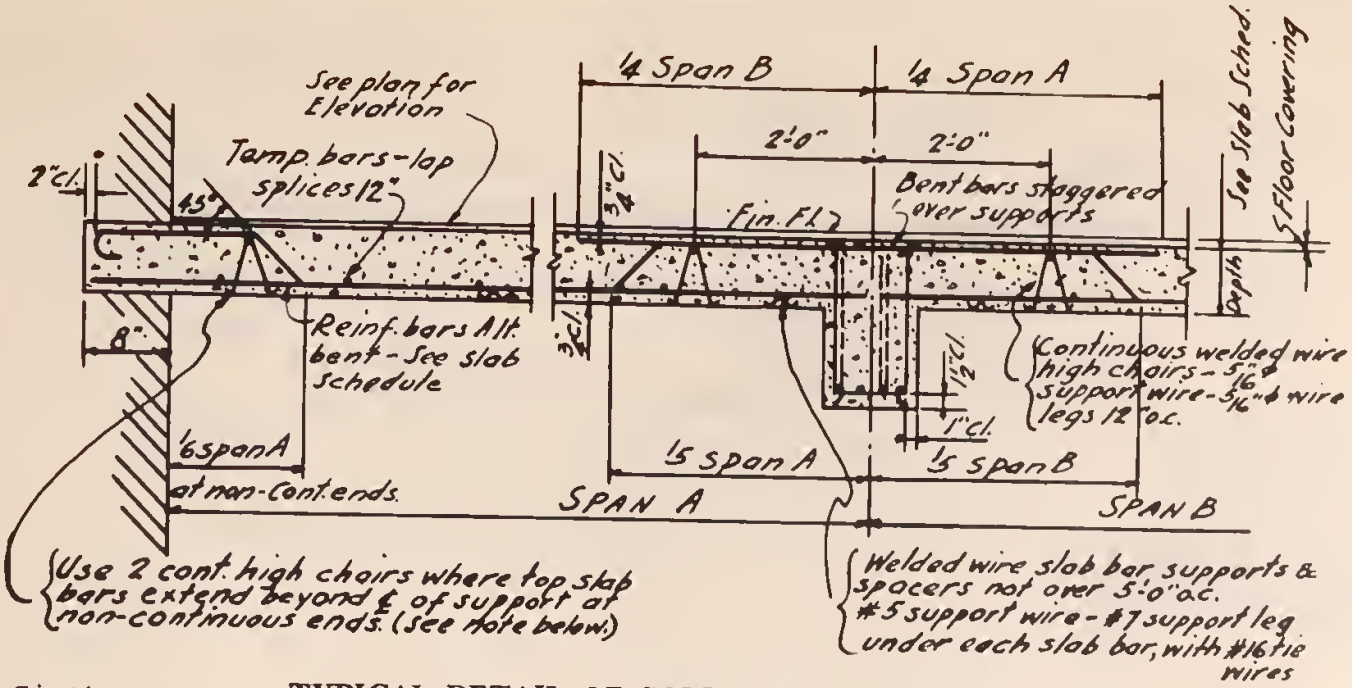
(7) Exterior concrete walls shall be reinforced with ⅜-inch round bars, spaced 18 inches on centers, both ways;

(8) Provide a minimum of 6 inches of concrete below all pipe sleeves in foundations;

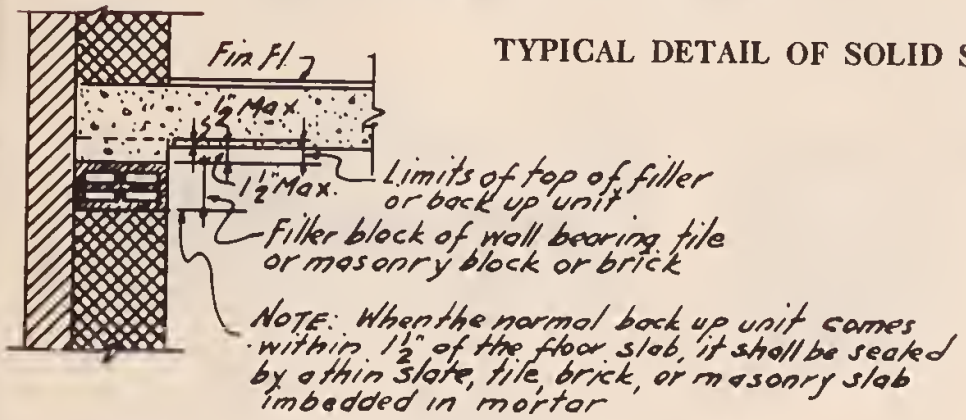
(9) Special effort shall be made for uniformity in form work for beams, columns, etc., same size square columns to be used throughout, if possible;

(10) Beams and girders should conform to actual board sizes of form lumber, e. g., 7½ inches, 9½ inches, etc.;

(11) Equal spans to be used wherever possible.



TYPICAL DETAIL OF SOLID SLAB CONSTRUCTION



TYPICAL DETAIL OF BEARING OF FLOOR SLAB ON MASONRY WALLS

NOTE

See sheet No. H. D. 106 for masonry bearing wall construction.

NOTES

Alternate bars shall be bent up over support and staggered with bent bars from adjacent span.

At noncontinuous ends of slabs, bent bars shall extend two feet beyond ℄ of support where possible, otherwise ends shall be hooked.

All monolithic cement floor finishes are included in the scheduled depth of slabs, beams, and girders.

TYPICAL DETAILS OF CONCRETE SLAB AND BEARING OF FLOOR SLAB ON MASONRY WALLS

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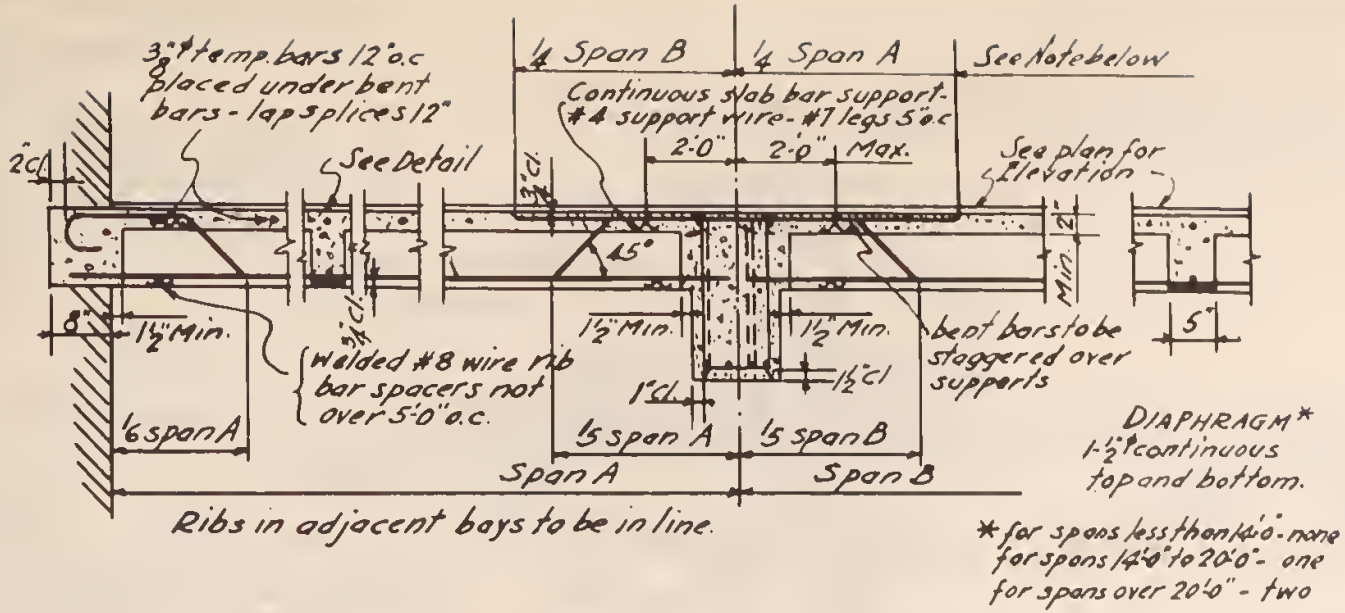
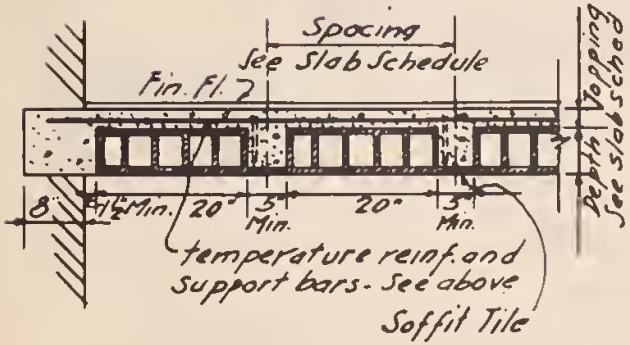
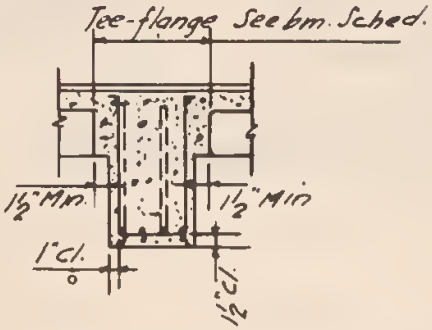
HOUSING DIVISION	DETAIL SHEET
HORATIO B. HACKETT DIRECTOR OF HOUSING APRIL 30, 1935	HD-101







NOTES

At noncontinuous ends of slabs bent bars shall extend two feet beyond ℄ of support where possible, otherwise ends shall be hooked.

Where required for concentrated loads, joist widths shall be increased as necessary, but joist depths shall not be increased.

Narrower form widths may be used as necessary to space ribs to maintain other details shown.

Extension of top bars into adjacent spans are typical as shown and are to be used only where differences between A and B are slight, otherwise the amount of extensions shall be given on plans.

All monolithic cement floor finishes are included in the scheduled depth of slabs, beams, and girders.

TYPICAL DETAILS OF RIBBED SLAB—
CLAY TILE FILLER

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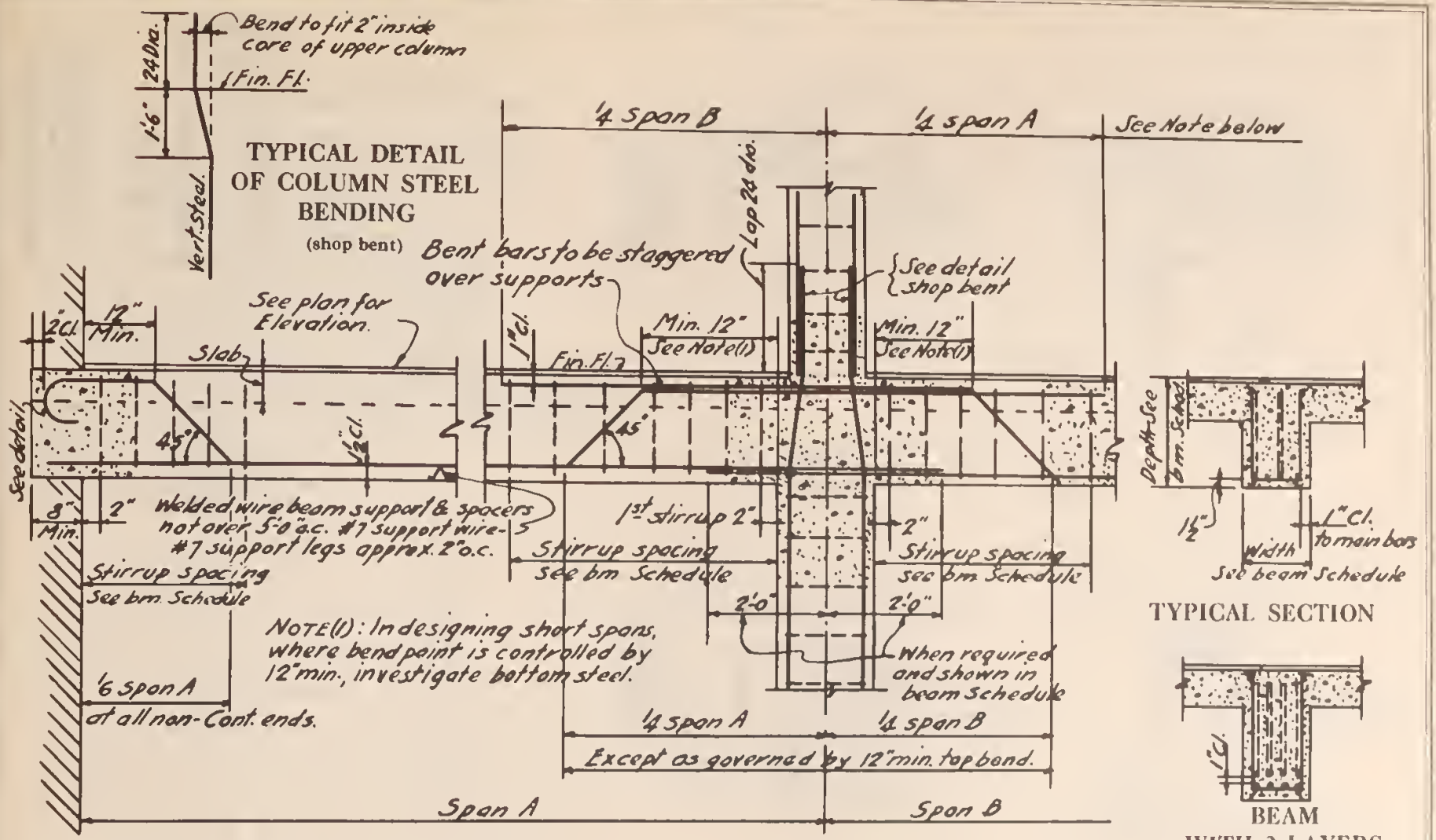
APRIL 30, 1935

DETAIL SHEET
HD-102



For details shown but not noted, see typical section above.

NOTES

At noncontinuous ends of beams, bent bars shall extend two feet beyond ℄ of support where possible, otherwise ends shall be hooked.

Extensions of top bars into adjacent spans are typical as shown and are to be used only where differences between A and B are slight, otherwise the amount of extensions shall be given on plans or in beam schedules.

All monolithic cement floor finishes are included in the scheduled depth of slabs, beams, and girders.

TYPICAL CONCRETE BEAM DETAILS

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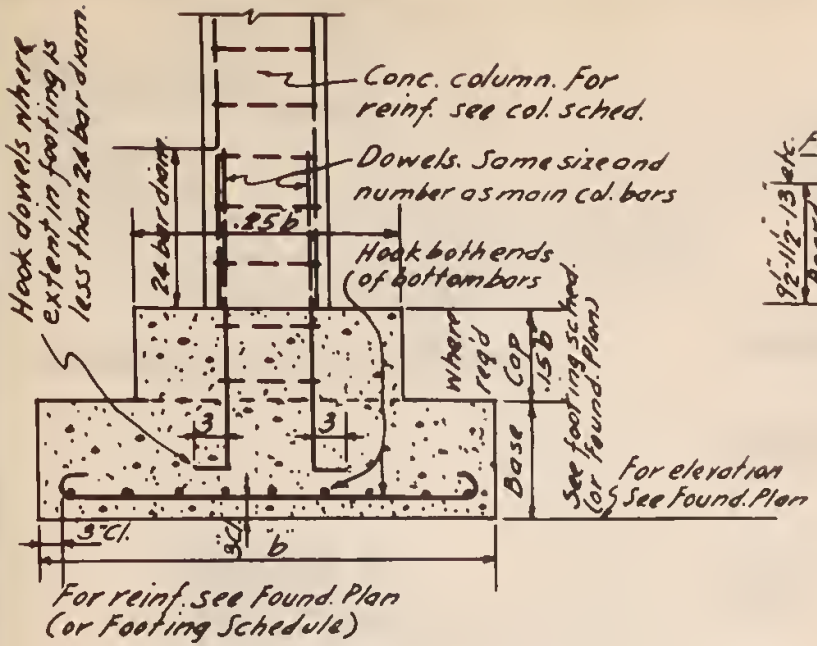
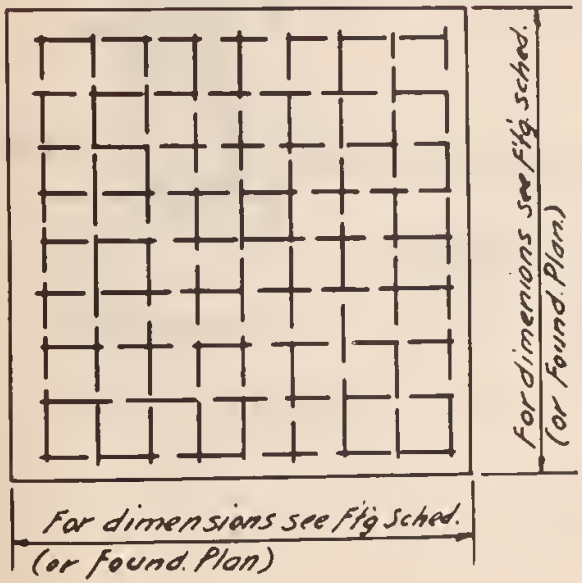
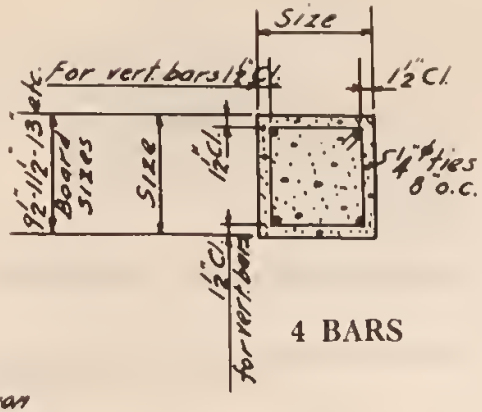
DIRECTOR OF HOUSING
APRIL 30, 1935

DETAIL SHEET
HD-103

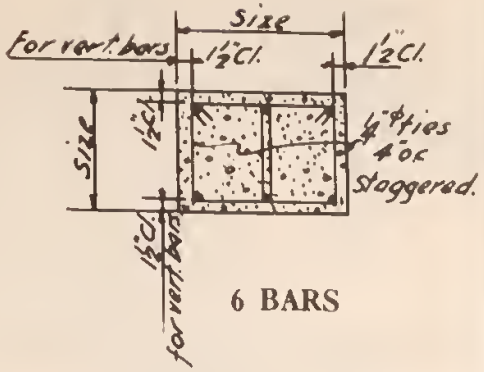




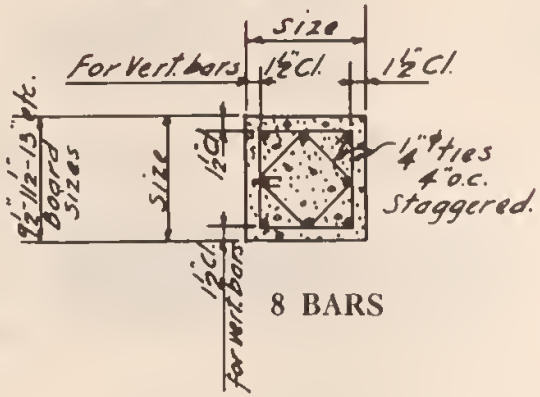
TYPICAL COLUMN FOOTING DETAILS



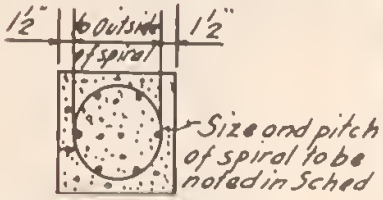
4 BARS



6 BARS



8 BARS



SPIRAL COLUMN

For column sizes and reinf. see column schedule.

TYPICAL COLUMN DETAILS

TYPICAL DETAILS OF CONCRETE COLUMNS AND FOOTINGS

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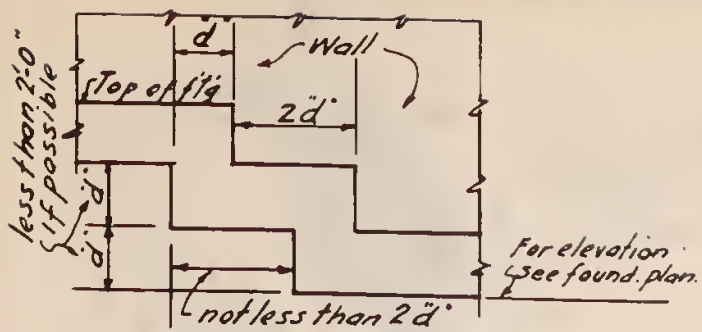
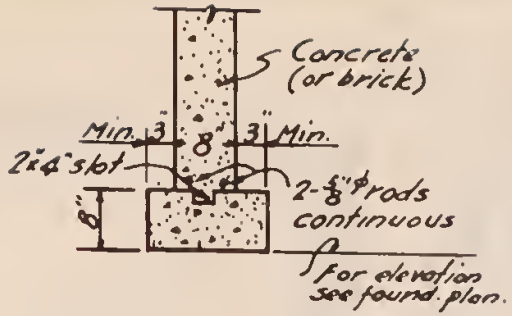
DETAIL SHEET
HD-104

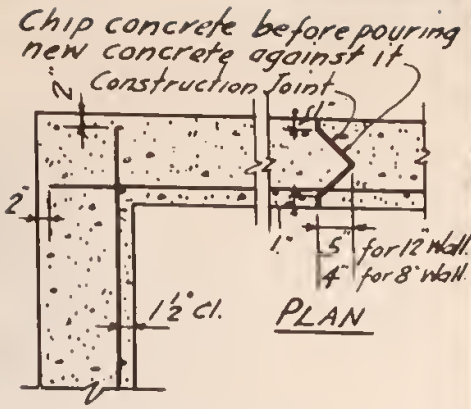


STEPPED FOOTING ELEVATION

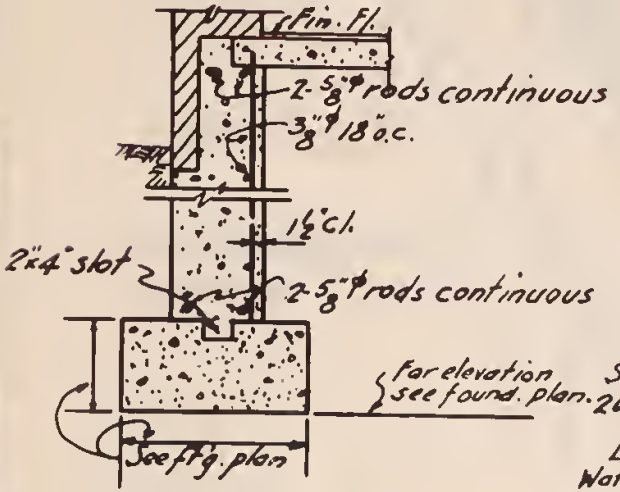


INTERIOR WALL AND FOOTING

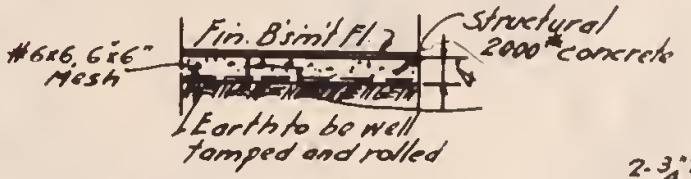
Typical for all brick or concrete walls unless otherwise shown on plans.



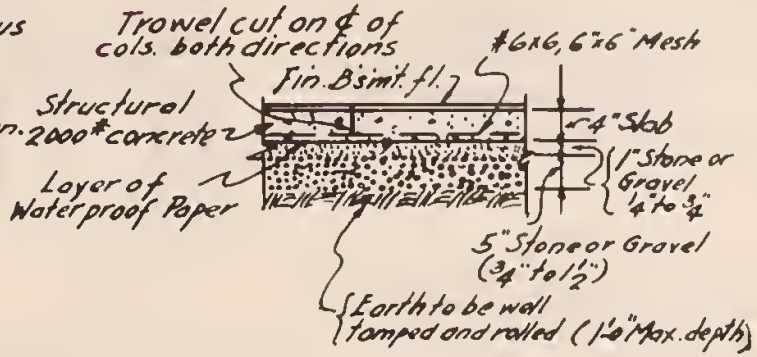
TYPICAL DETAIL AT CORNERS OF CONCRETE WALLS



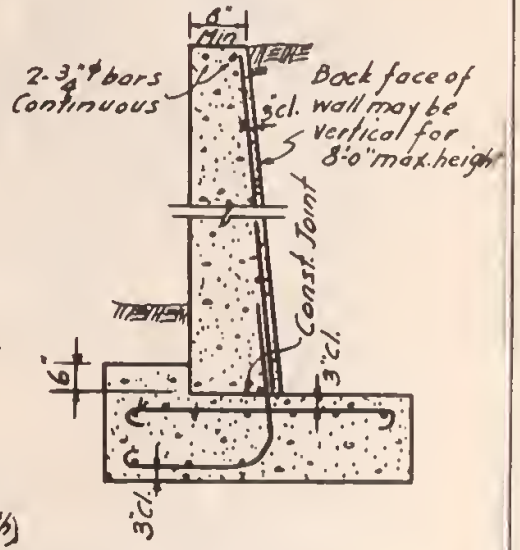
TYPICAL EXTERIOR WALL AND FOOTING



BASEMENT SLAB IN UNOCCUPIED AREAS



DETAIL OF BASEMENT SLAB ON FILL IN OCCUPIED AREAS



TYPICAL DETAIL OF CANTILEVER RETAINING WALL

TYPICAL DETAILS OF CONCRETE WALLS, FOUNDATIONS AND BASEMENT SLABS

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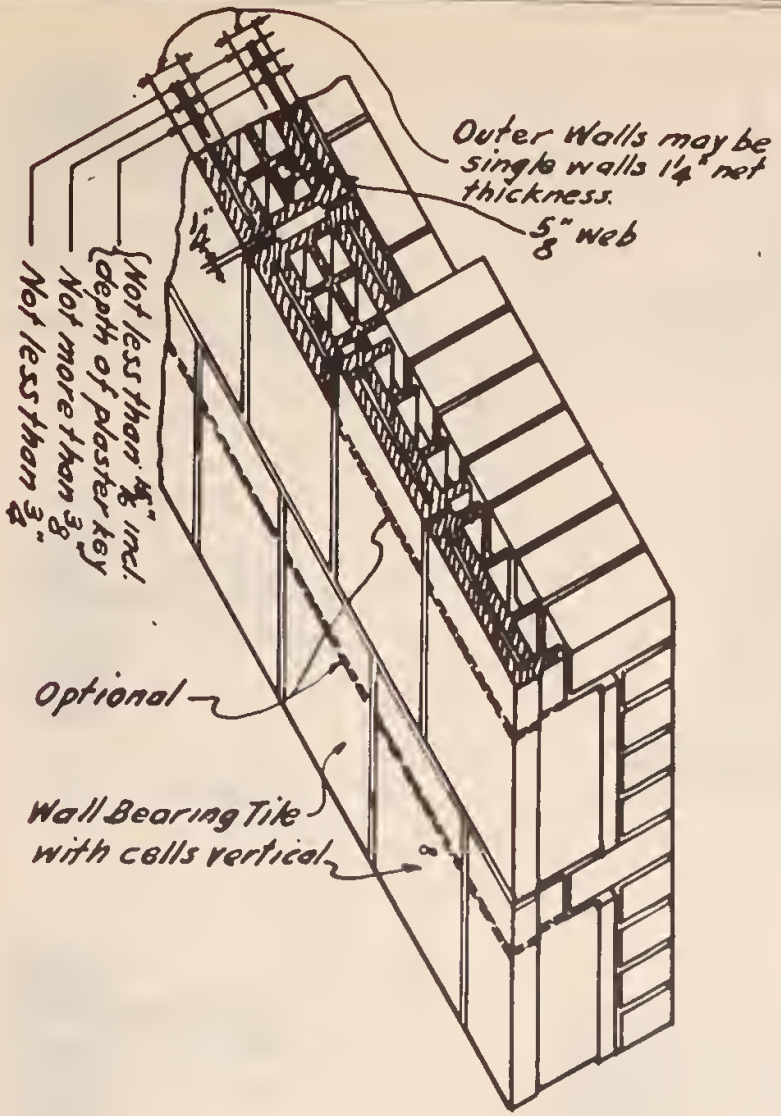
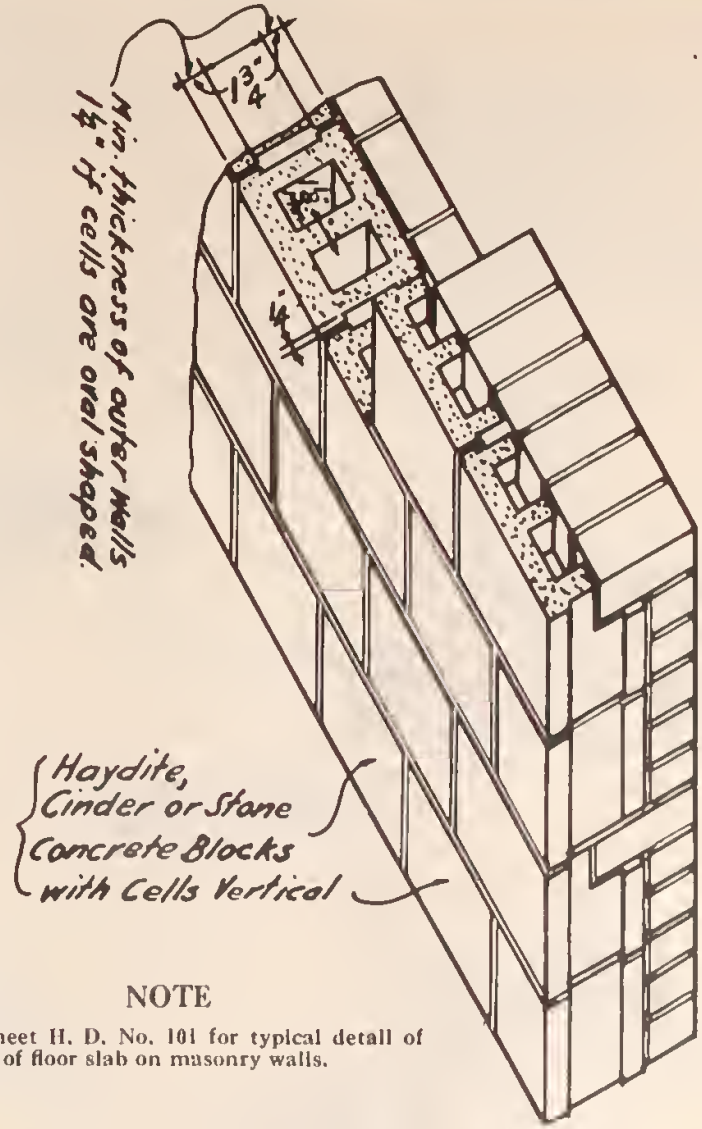
HOUSING DIVISION HORATIO B. HACKETT DIRECTOR OF HOUSING APRIL 30, 1935	DETAIL SHEET HD-105



TYPICAL DETAIL SHOWING METHOD OF BOND OF WALL CONSTRUCTION FOR CLAY TILE BACKUP



NOTE

See sheet H. D. No. 101 for typical detail of bearing of floor slab on masonry walls.

TYPICAL DETAIL SHOWING METHOD OF BOND OF WALL CONSTRUCTION FOR CINDER OR STONE CONCRETE BLOCK BACKUP

TYPICAL MASONRY BEARING WALL DETAILS

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HOUSING DIVISION
HORATIO B. HACKETT
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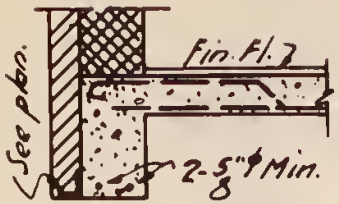
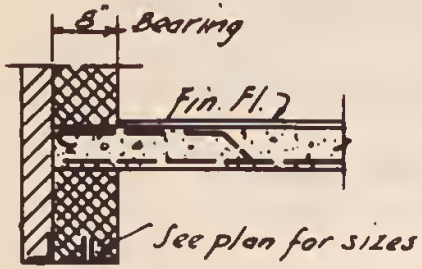
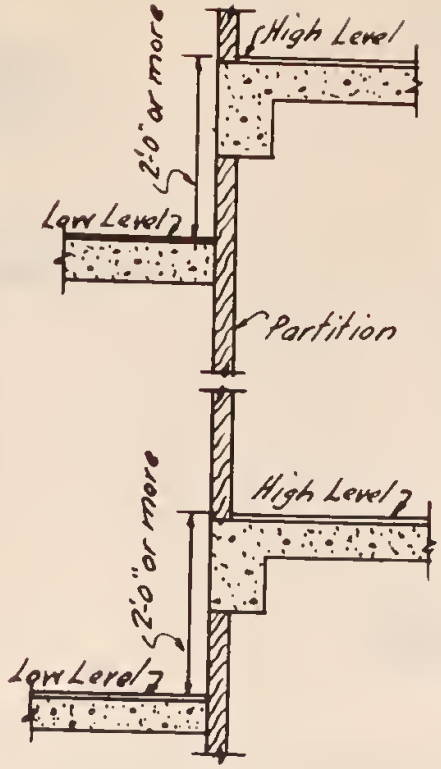
DETAIL SHEET
HD-106

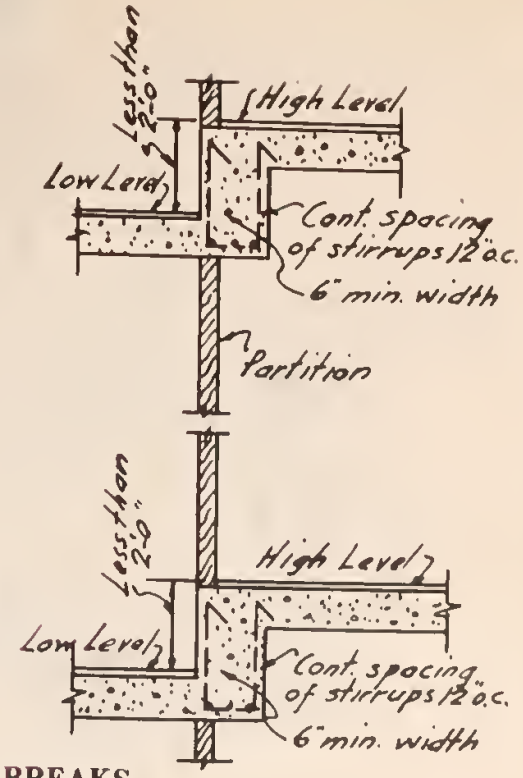


TYPICAL CONCRETE LINTEL

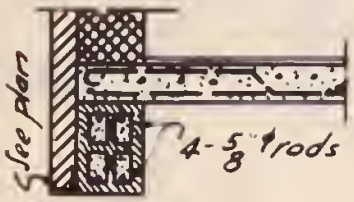


TYPICAL STEEL LINTEL

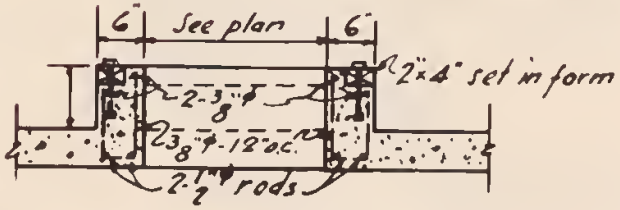




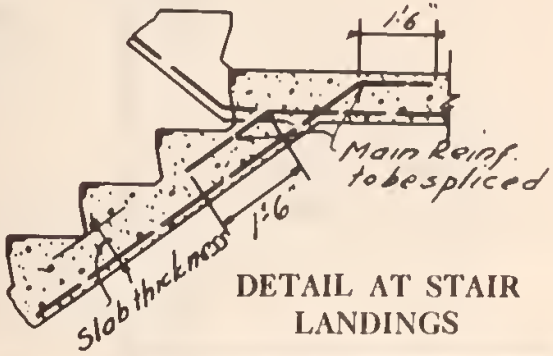
FRAMING AT BREAKS IN FLOOR LEVELS



TYPICAL PRE-CAST LINTEL



TYPICAL SCUTTLE DETAIL



DETAIL AT STAIR LANDINGS

TYPICAL DETAILS OF SCUTTLE, LINTELS, STAIRS, AND BREAK IN FLOOR LEVELS

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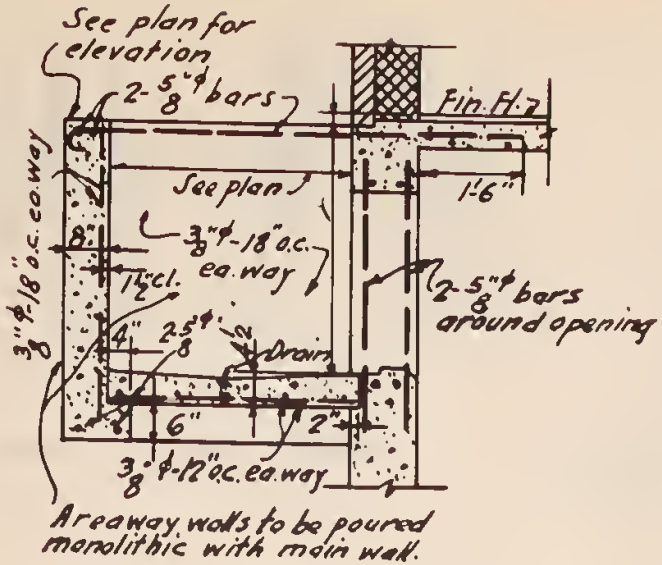
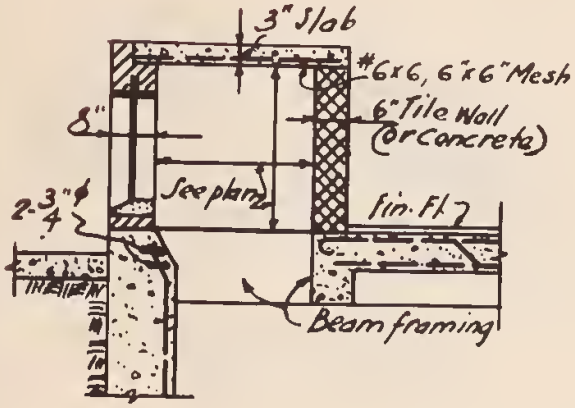
APRIL 30, 1935

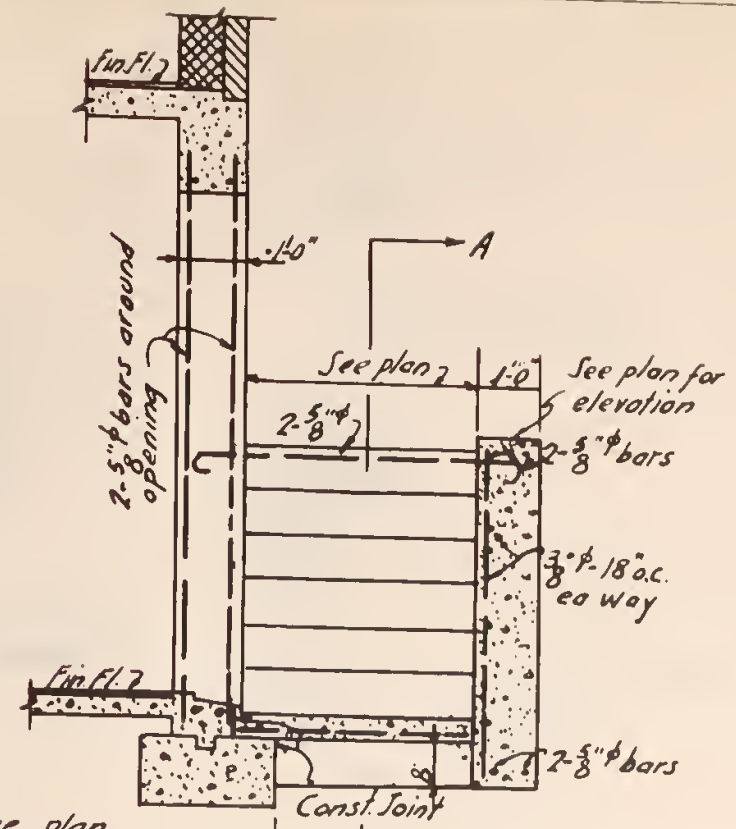
DETAIL SHEET
HD-107

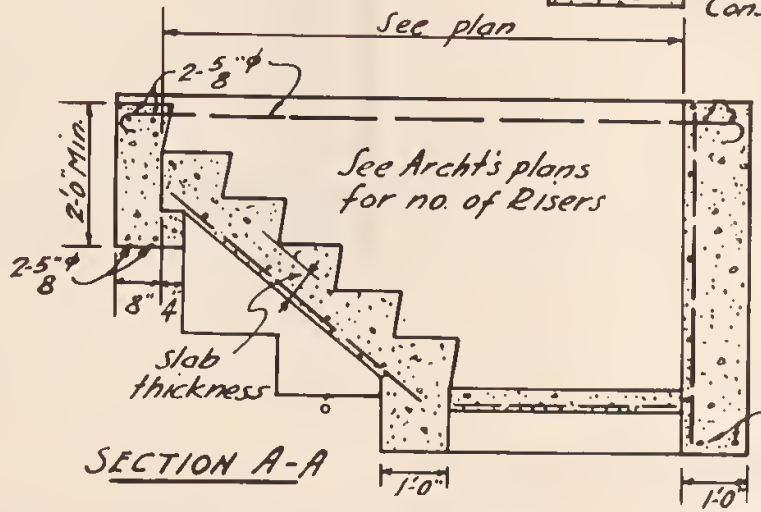


TYPICAL DETAIL OF AREAWAY



TYPICAL DETAIL OF BULKHEAD FOR SHOP FRONTS





TYPICAL ENTRANCE AREA DETAILS

TYPICAL DETAILS OF AREAWAYS AND STORE BULKHEADS

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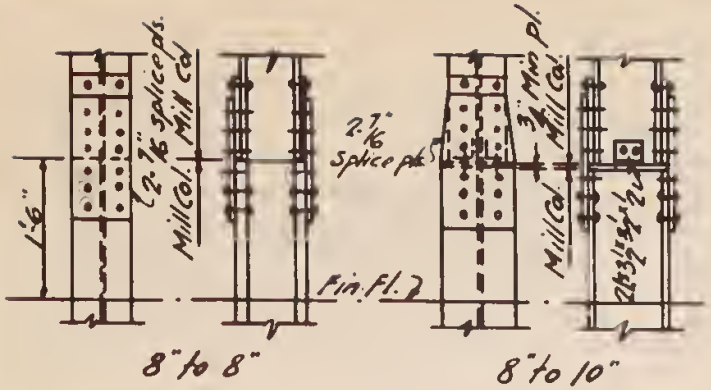
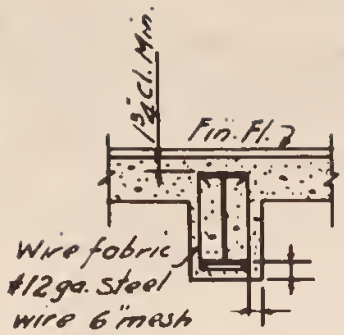
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
APRIL 30, 1935

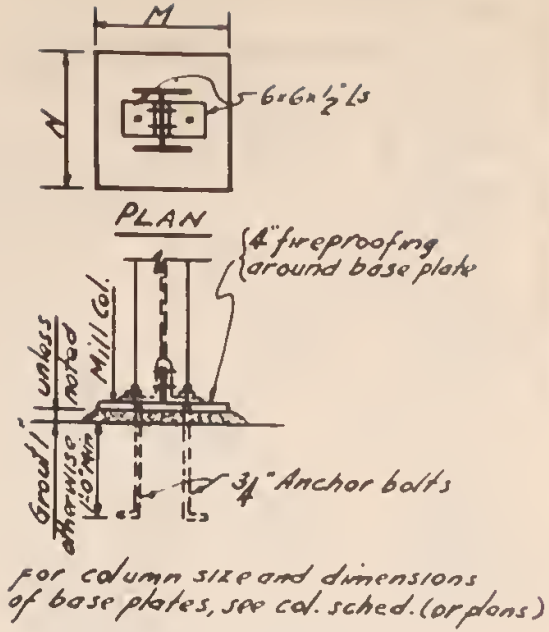
DETAIL SHEET
HD-108



STEEL COLUMN SPLICES



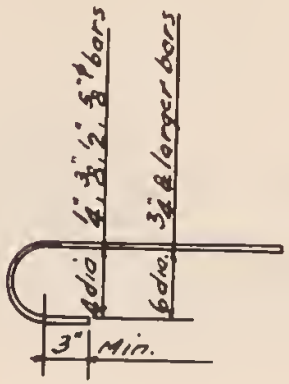
FIREPROOFING FOR STEEL BEAMS



DETAIL OF BASE OF STEEL COLUMN

CONCRETE TERRA COTTA

FIREPROOFING FOR STEEL COLUMNS



TYPICAL

AT STEEL BEAMS

DETAIL OF BAR HOOKS

TYPICAL DETAILS OF BAR HOOKS AND STRUCTURAL STEEL DETAILS AND FIREPROOFING	UNITED STATES FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS HAROLD L. ICKES · ADMINISTRATOR	HOUSING DIVISION HORATIO B. HACKETT DIRECTOR OF HOUSING APRIL 30, 1935	DETAIL SHEET HD-109

MARK	DEPTH	REINFORCEMENT			REMARKS
		Straight Bars	Bent Bars	Temp. Bars	
S5½	5½"	½"φ-12"o.c.	½"φ-12"o.c.	⅜"φ-11"o.c.	Lap bottom bars
S4½	4½"	⅜"φ-11"o.c.	⅜"φ-11"o.c.	⅜"φ-12"o.c.	

SOLID SLAB SCHEDULE (one schedule for job)

COL. Nos.		1-4-5-7	2-3-6
Roof } 2nd Fl. }	9'-2"	(15) 11½x12 4-⅝"φ	(30) 13"x13" 6-½"φ 1¼"φ sp. @ 1½"
1st Fl. }	9'-2"	(38) 11½"x12" 4-⅝"φ	(80) 13"x13" 8-⅝"φ 1¼"φ sp. @ 1½"
El. 101.7' }	Varies	(61) 13x14 4-¾"φ	(130) 15"x15" 8-¾"φ 1¼"φ sp @ 2" 3000# Con.
FOOTING	Cap	—	1'-8"x1'-8"x10"
	Base	4'-6"x4'-6"x14"	6'-6"x6'-6"x16"
	Reinf ea. way.	9-½"φ	15-½"φ

COLUMN SCHEDULE (one schedule for job)

Columns to be numbered consecutively, starting with Col. No. 1, for each building.

MARK	SIZE	TEE-FLANGE	REINFORCEMENT		STIRRUPS	REMARKS
			Straight Bars	Bent Bars	Spacing from face of each support	
B1	11½"x14"	24"	2-1"φ Lap	2-1"φ	⅜"φ 1@2", 3@5", 2@7", 2@10"	1-1"φ x 8'-0" top at Col.
R1	11½x14	20	2-⅞"φ	2-⅞"φ	⅜"φ-1@2", 3@7, 2@9"	1-⅞"φ-8'-0" top at Col.

BEAM SCHEDULE (one schedule for job)

NOTES

¼" φ column ties 8" o. c. unless otherwise noted.

Column leads are given in kips.

All concrete to be 2000# unless otherwise noted.

TYPICAL CONCRETE SLAB, BEAM AND COLUMN SCHEDULES

UNITED STATES
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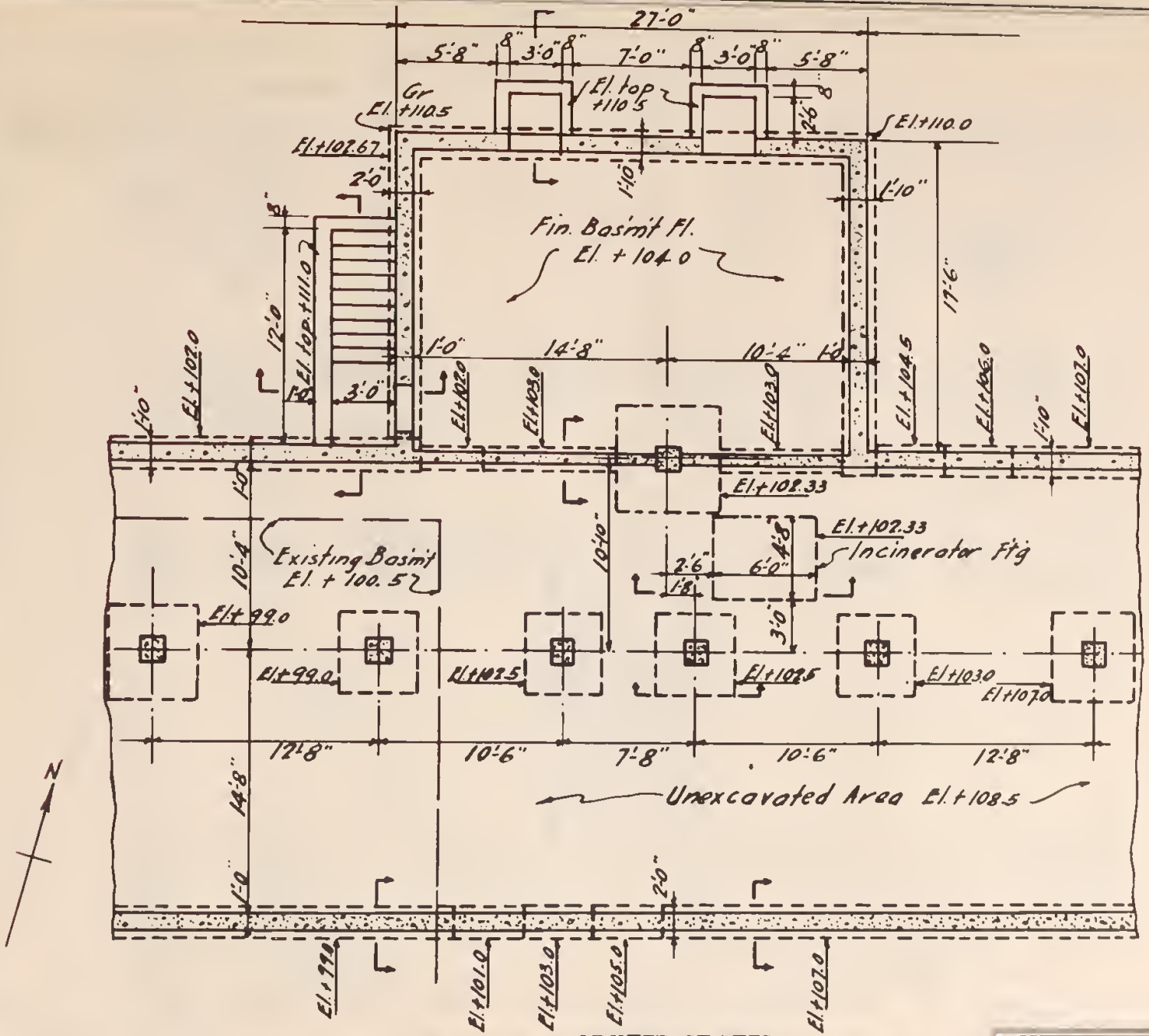
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
APRIL 30, 1935

DETAIL SHEET
HD-110



NOTES

Elevation of footings are to bottoms.

For each building, show one set of section marks corresponding to typical details.

SAMPLE FOUNDATION PLAN

UNITED STATES
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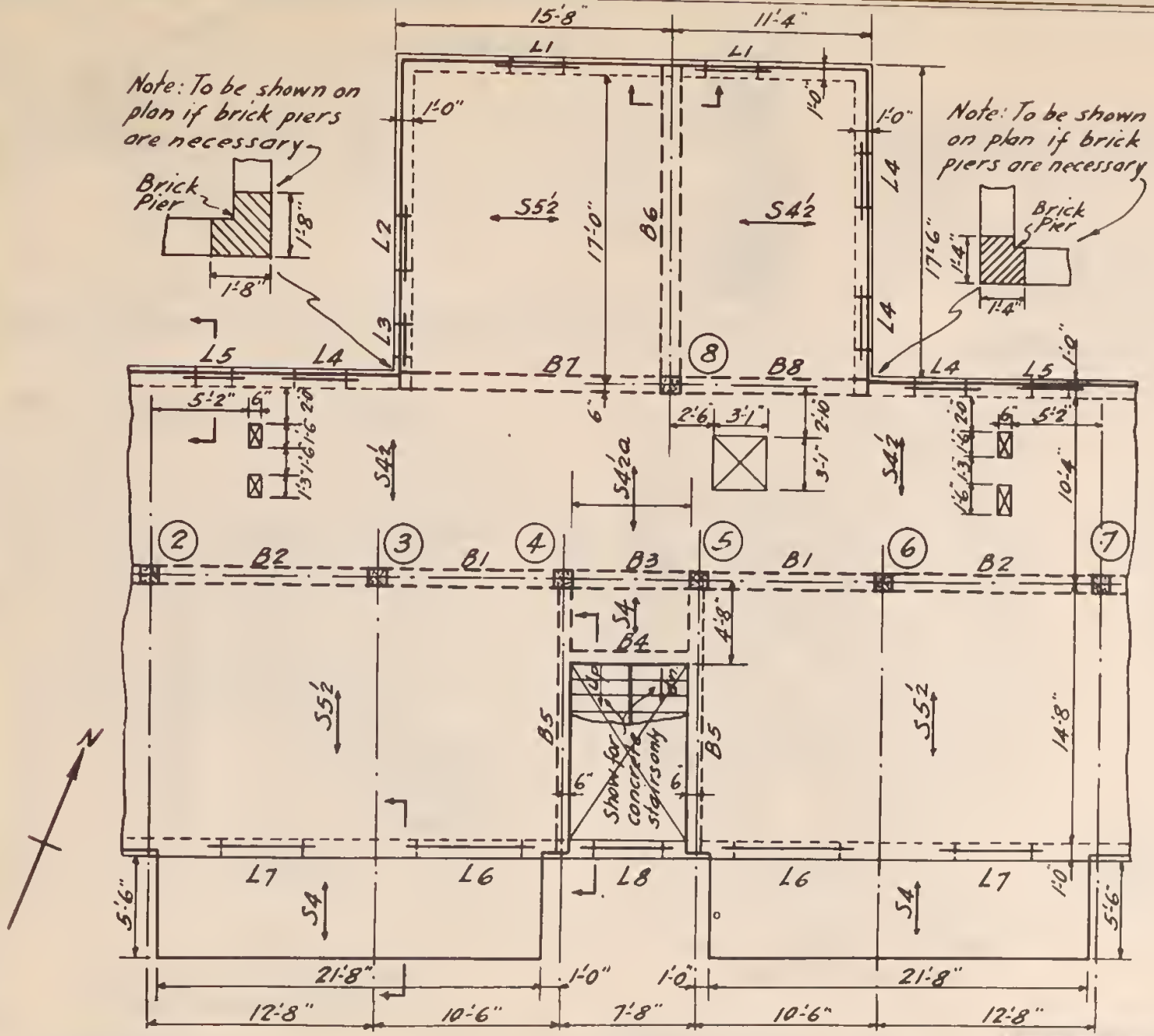
HOUSING DIVISION	DETAIL SHEET
HORATIO B. HACKETT DIRECTOR OF HOUSING APRIL 30, 1935	HD-112



NOTES

Live load 40# 1□'

For each building, show one set of section marks corresponding to typical details.

SAMPLE FLOOR FRAMING PLAN

UNITED STATES
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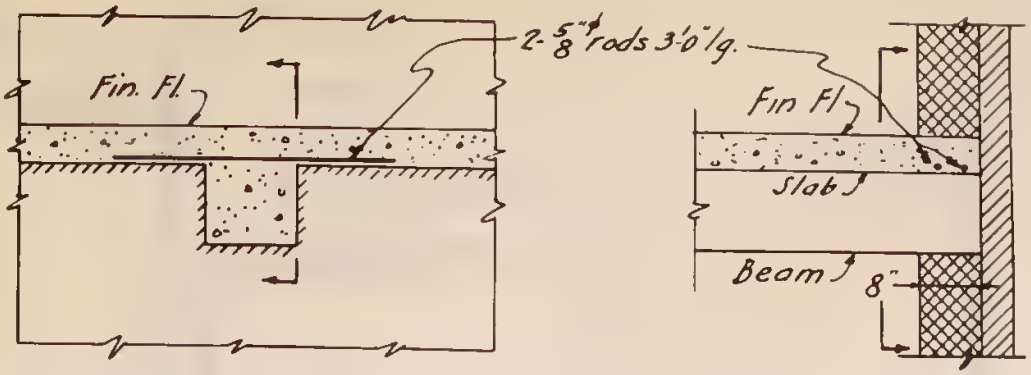
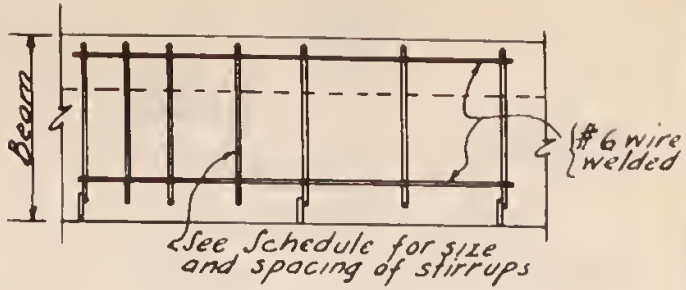
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
APRIL 30, 1935

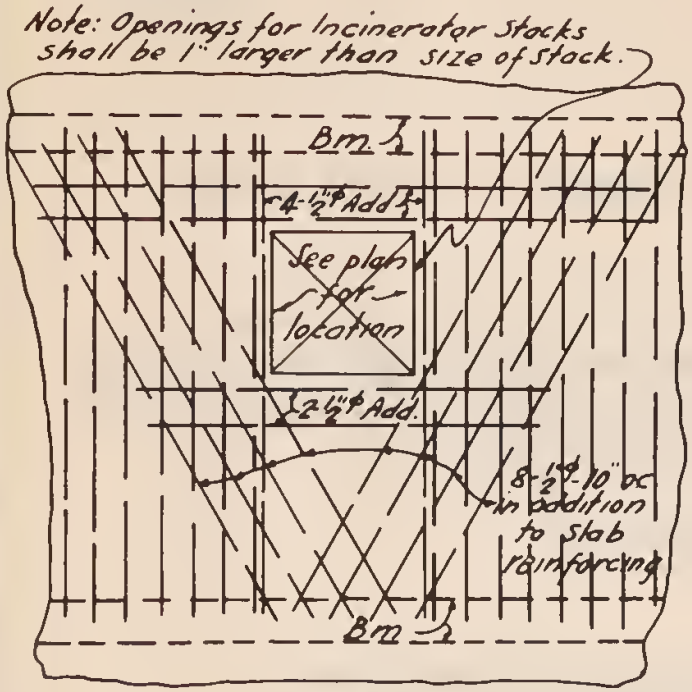
DETAIL SHEET
HD-113



TYPICAL DETAILS OF BEAMS BEARING ON MASONRY WALLS

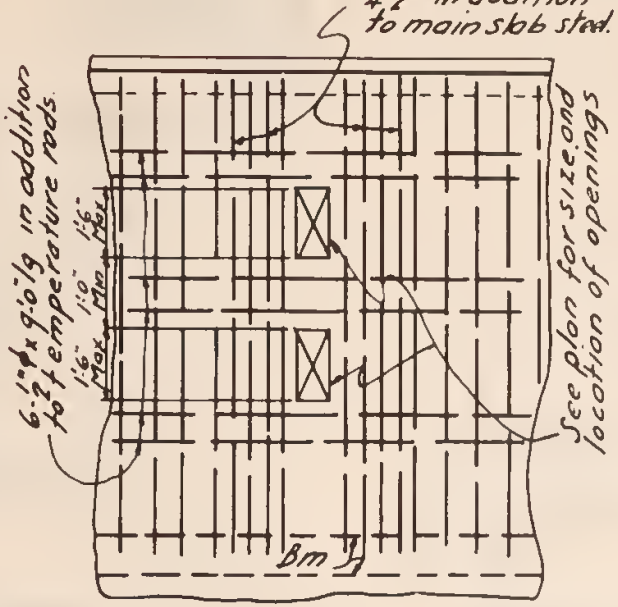


SIDE ELEVATION



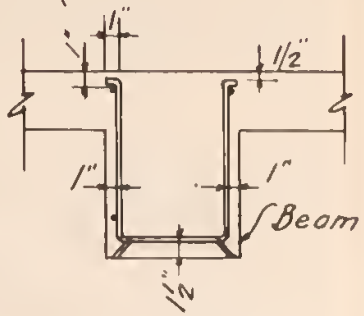
PLAN

TYPICAL DETAIL OF FRAMING FOR INCINERATORS



PLAN

TYPICAL DETAIL OF FRAMING FOR PIPE SLOTS



END VIEW

TYPICAL DETAILS OF UNIT BUILT STIRRUPS

MISCELLANEOUS DETAILS

UNITED STATES
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HOUSING DIVISION
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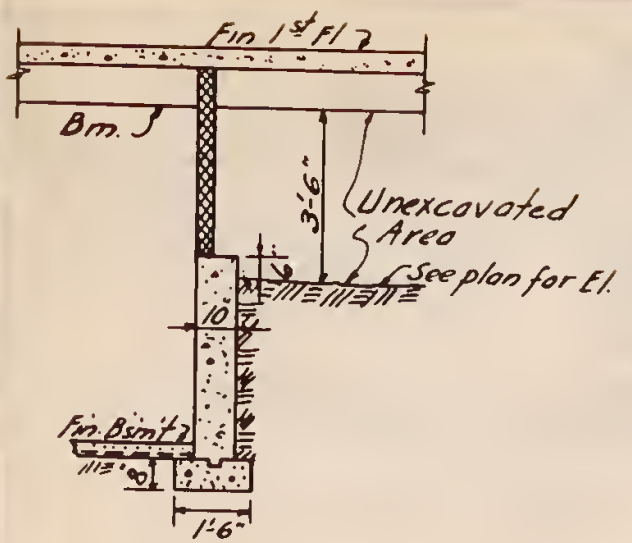
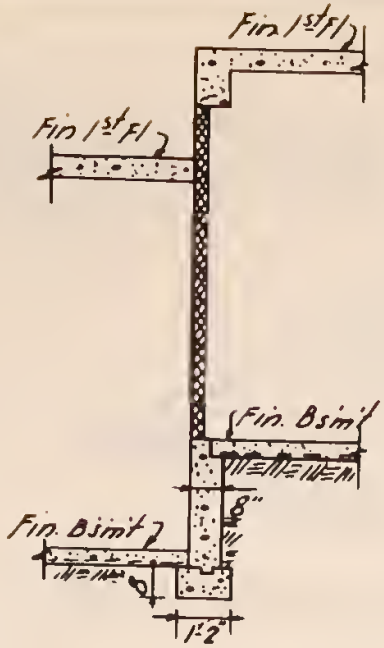
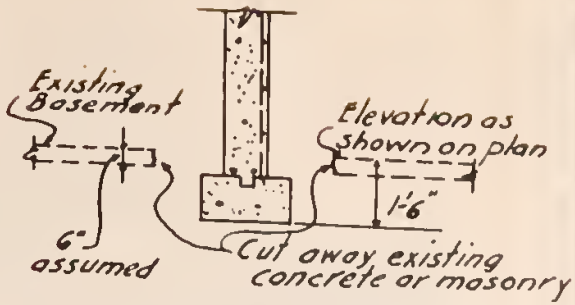
DETAIL SHEET
HD-114

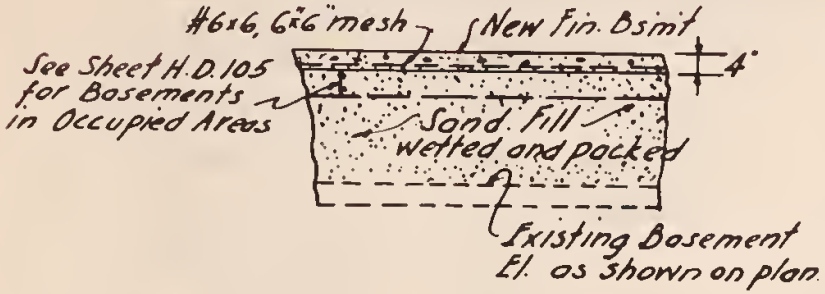




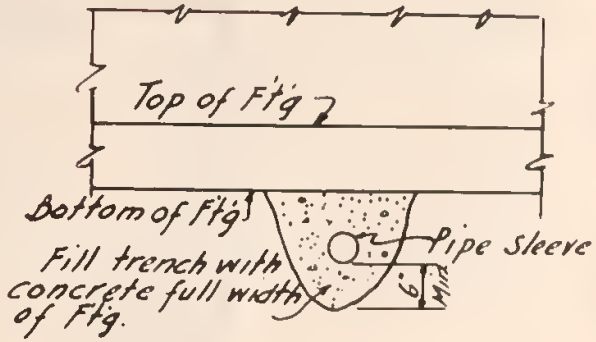
TYPICAL DETAILS OF INTERIOR BASEMENT WALLS



TYPICAL DETAIL OF FOOTINGS AT EXISTING BASEMENTS



TYPICAL DETAIL OF BASEMENTS AT EXISTING BASEMENTS



TYPICAL DETAIL WHERE PIPES PASS BELOW WALL FOOTINGS

MISCELLANEOUS DETAILS

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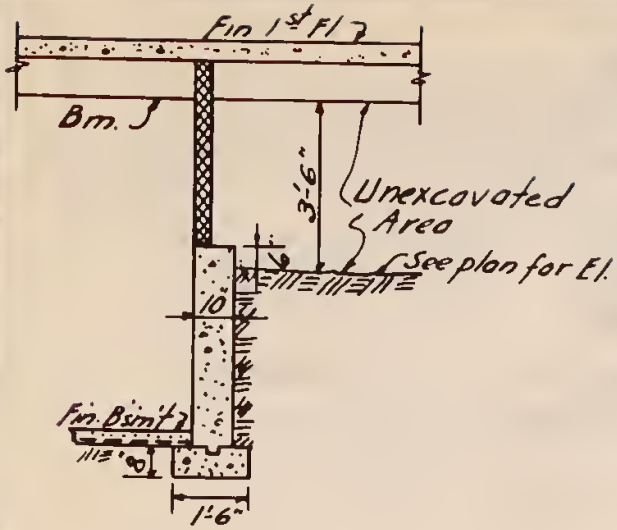
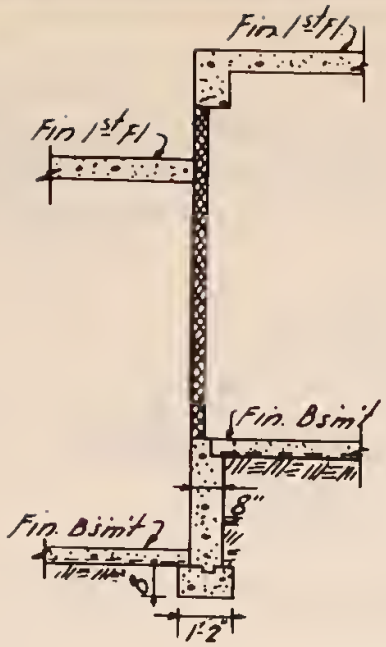
HAROLD L. ICKES · ADMINISTRATOR

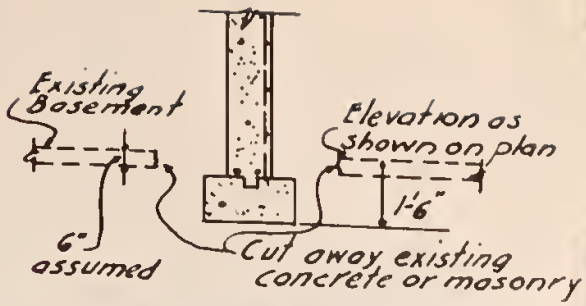
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
APRIL 30, 1935

DETAIL SHEET
HD-115

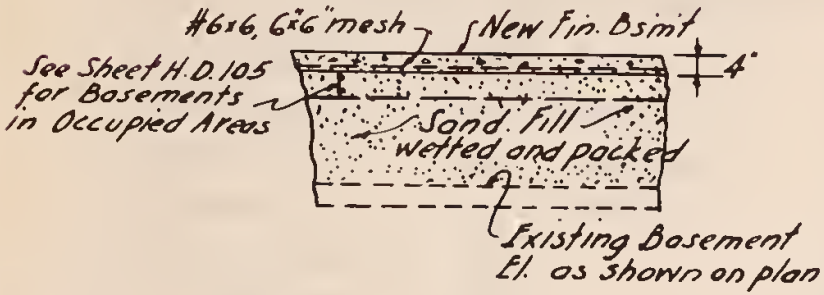




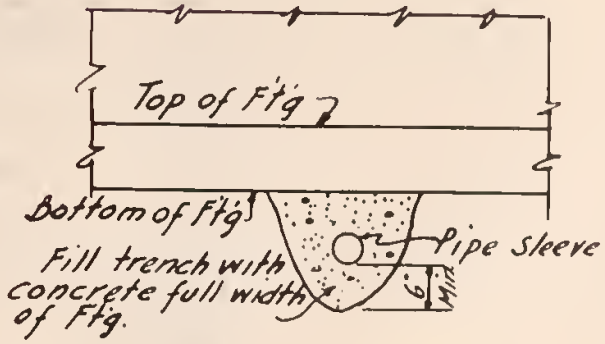
TYPICAL DETAILS OF INTERIOR BASEMENT WALLS



TYPICAL DETAIL OF FOOTINGS AT EXISTING BASEMENTS



TYPICAL DETAIL OF BASEMENTS AT EXISTING BASEMENTS



TYPICAL DETAIL WHERE PIPES PASS BELOW WALL FOOTINGS

MISCELLANEOUS DETAILS

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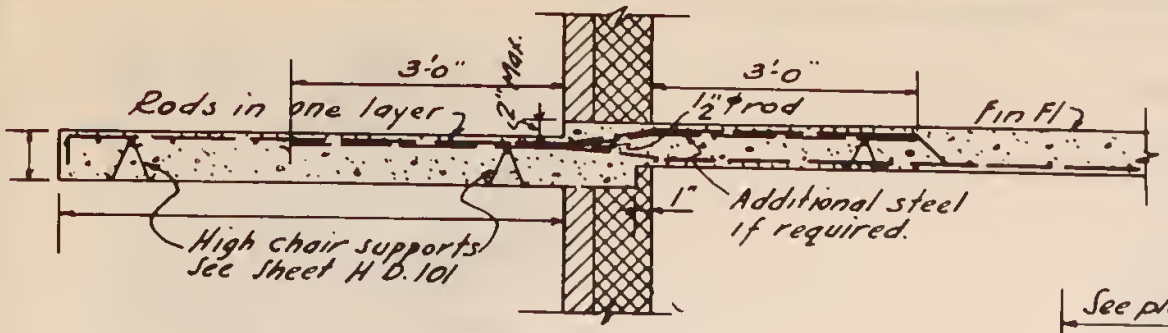
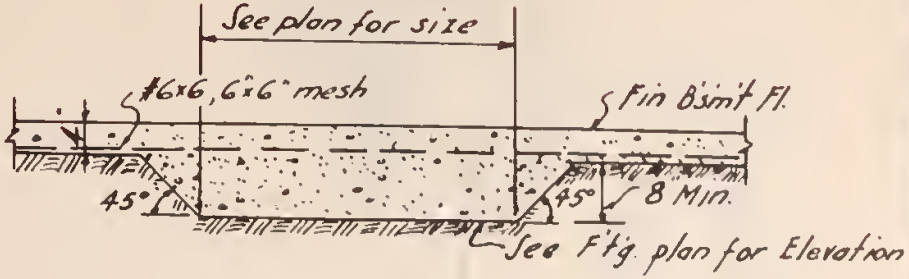
HOUSING DIVISION	DETAIL SHEET
HORATIO B. HACKETT DIRECTOR OF HOUSING APRIL 30, 1935	HD-115



TYPICAL DETAIL OF CANOPY OR BALCONY CANTILEVER

(Concrete Porch Details similar)



TYPICAL DETAIL OF INCINERATOR STACK FOOTING

SAMPLE TABLE OF FLOOR AND ROOF LOADS

Roofs		Floors		Stores	
Roofing	5 #/□'	Finish	0	Finish	0
Insulation	3	Slab (5 1/2")	69	Slab (5")	62
Slab (4")	50	partitions	20	partitions	0
Plaster	0	plaster	0	plaster	0
Total Dead Load	58		89		62
Live Load	30		40		100
Total Load	88 #/□'		129 #/□'		162 #/□'

NOTE: The above table of loads to appear on typical detail sheet.

MISCELLANEOUS DETAILS

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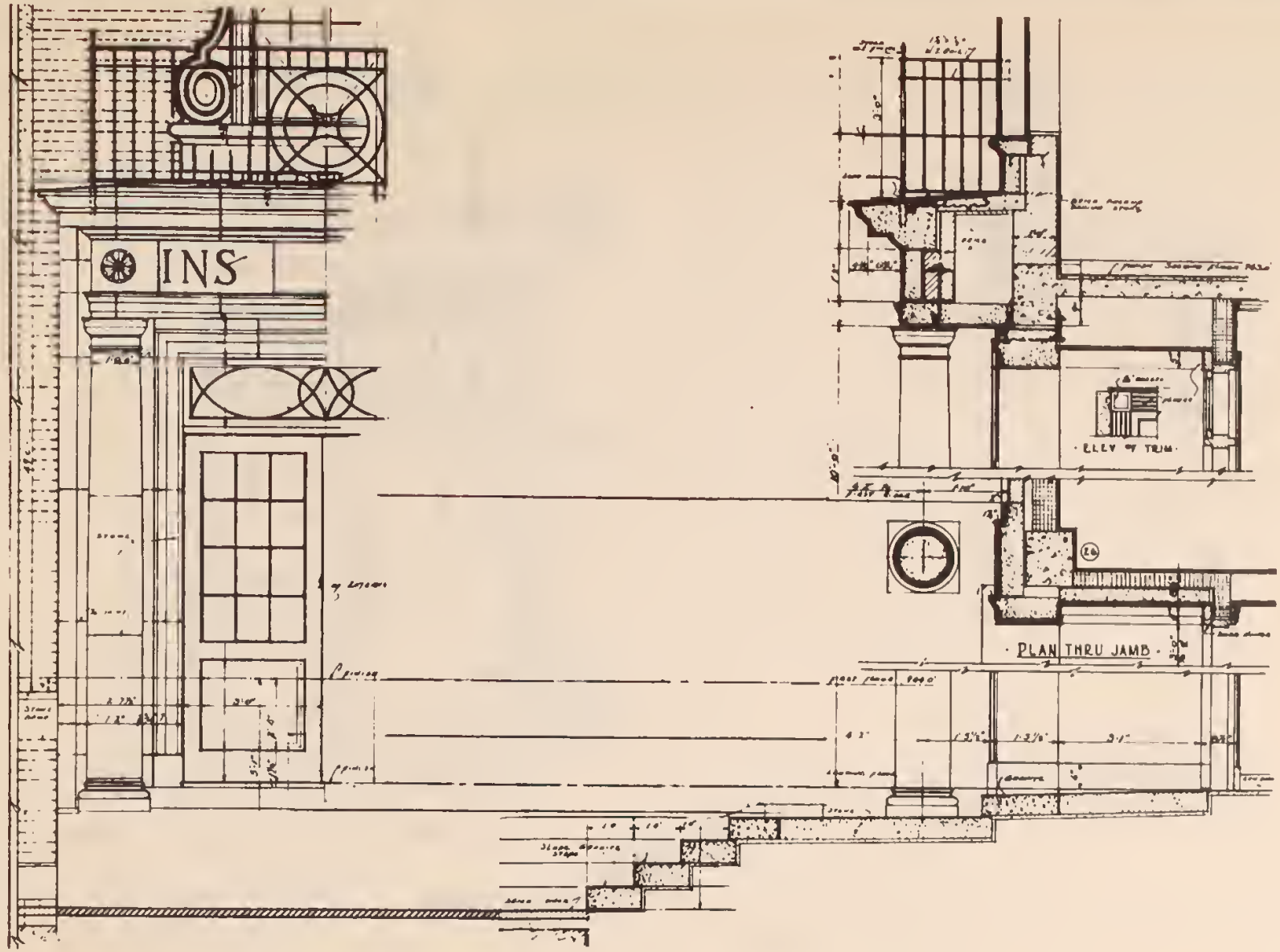
HOUSING DIVISION
HORATIO B. HACKETT
DIRECTOR OF HOUSING
APRIL 30, 1935

DETAIL SHEET
HD-116



COMPARATIVE
FRONT ENTRANCE
DETAILS

UNITED STATES
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OF PUBLIC WORKS
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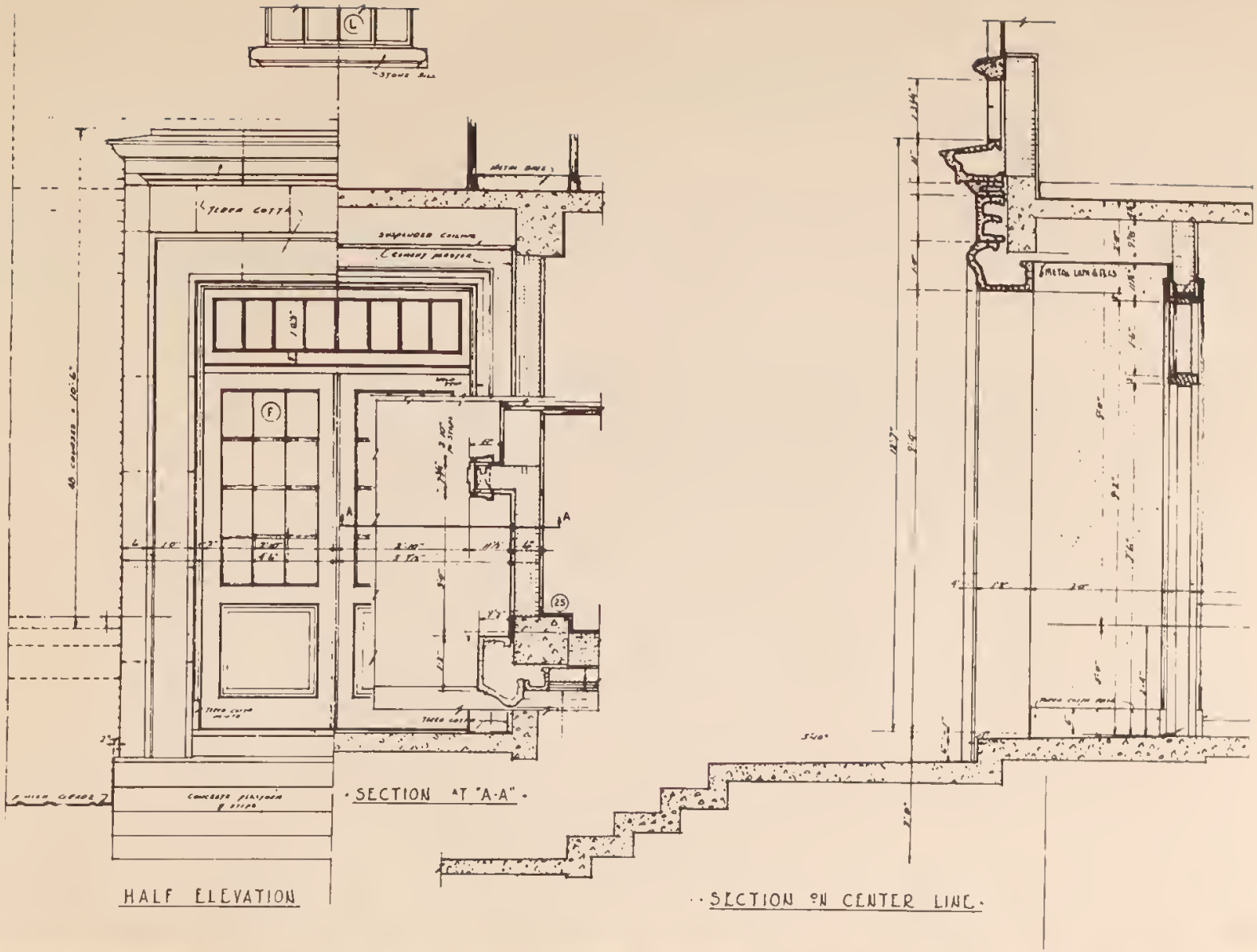
HOUSING DIVISION	COMPARATIVE SHEET
HORATIO B. HACKETT DIRECTOR OF HOUSING JANUARY 30, 1935	No. 1



COMPARATIVE FRONT ENTRANCE DETAILS

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JANUARY 30, 1935

COMPARATIVE SHEET
No. 2

· Ineffective Plans ·

Low-rent housing is in the stage of a progressive series of improvements. What may appear to be satisfactory at the present time may soon be proved unwise. In a similar fashion, the following plans were looked upon with favor one year ago. These plans are offered to indicate by comparison the strides made in this type of design and construction and to give concise examples to architects in order to show the trends in desirability of layout.

The following details should be particularly studied in connection with the ineffective plans here presented:

(1) Poor arrangement of rooms
(2) bath rooms lack economy of layout
(3) excessive number of plumbing stacks
(4) kitchens poorly planned
(5) needlessly long corridors block through ventilation and result in waste space.

REMARKS

1. Title: 4—3s—3—3—3—5—3—2s room unit.
2. Type of plan: Cross plan.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
4. General:
   (a) No through ventilation in apartments.
   (b) Efficient for stairs and incinerator with eight apartments per floor served by one unit.
   (c) Compulsory passing through living rooms in all dwelling units.
   (d) Long halls leading into individual apartments not desirable.
   (e) Large center public hall waste space.
   (f) Kitchens in two right apartments poorly lighted.
   (g) Poor arrangement of plumbing necessitates excessive stack lines.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	26
Total occupancy	Persons	30
Total gross area	Square feet	6,201
Average gross room area	Square feet	238
Total net area	Square feet	3,692
Average net room area	Square feet	142
Percent efficiency—gross vs net area	Percent	59.5
Outside wall per room:		
(a) With no end wall	Lineal feet	11 feet 5 inches
(b) Including end wall	Lineal feet	15 feet 10 inches
Interior partitions per room	Lineal feet	38 feet
Stairs and incinerators	Number per room	1/26
Closet space per room	Lineal feet	3 feet 10 inches
Arrangement of plumbing stacks	Number	2 B/B 2 K/K 4 B 4 K

· NOTE ·

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JANUARY 30, 1935

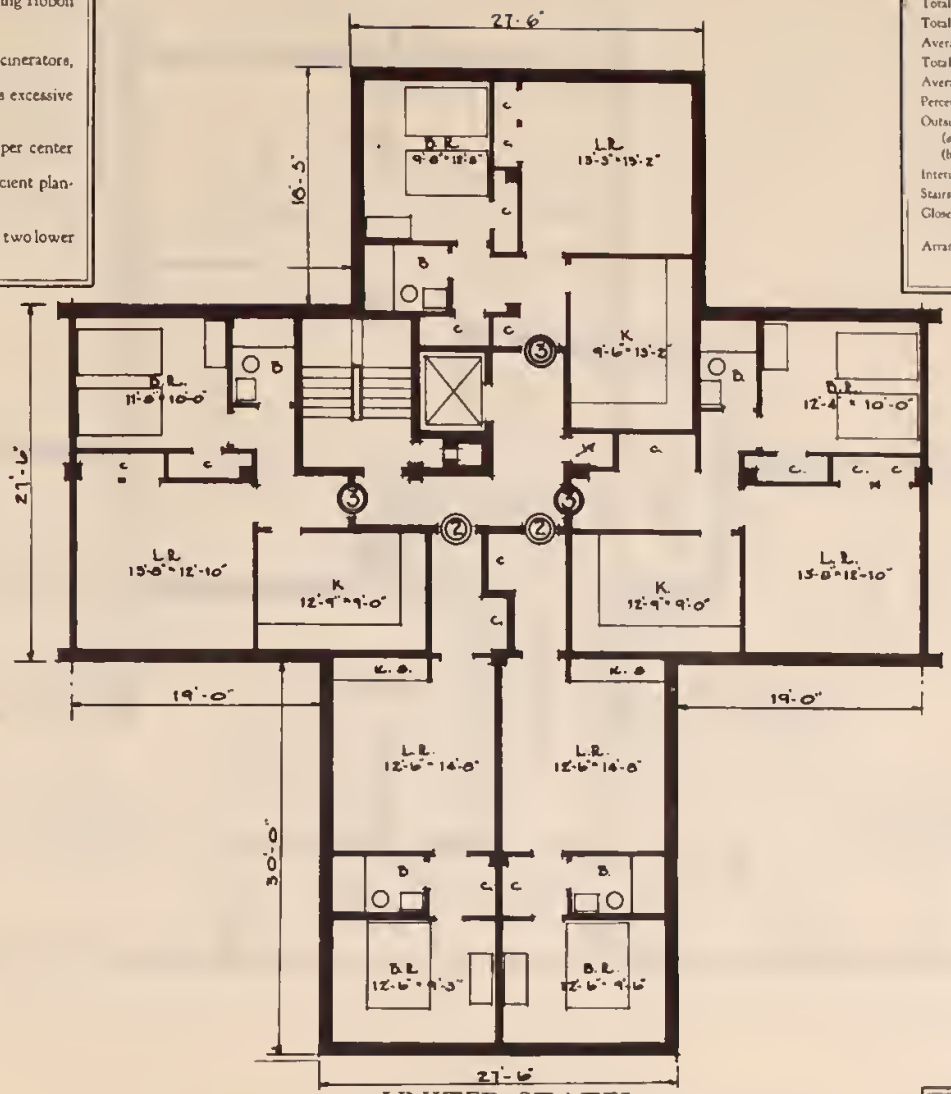
INEFFECTIVE PLAN
No. 1

REMARKS

1. Title: 3—3—3—2—2-room unit.
2. Type of plan: Cross plan.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as a run of cross plans or as a point of meeting of either three or four intersecting ribbon units.
4. General:
   (a) Highly efficient unit regarding stairs and incinerators, these serving four apartments per floor.
   (b) Poor arrangement of plumbing necessitates excessive stack lines.
   (c) No entry closet in left apartment.
   (d) No linen closets throughout except in upper center apartment.
   (e) Room area figure too high because of inefficient planning.
   (f) No pipe spaces allowed for plumbing.
   (g) Compulsory passing through living room in two lower apartments.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	13
Total occupancy	Persons	19
Total gross area	Square feet	3,128
Average gross room area	Square feet	241
Total net area	Square feet	1,845
Average net room area	Square feet	142
Percent efficiency—gross vs. net area	Percent	59
Outside wall per room		
(a) With no end wall	Lineal feet	13 feet
(b) Including end wall	Lineal feet	17 feet 2 inches
Interior partitions per room	Lineal feet	36 feet
Stairs and incinerators	Number per room	1/13
Closet space per room	Lineal feet	6 feet
Arrangement of plumbing stacks	Number	2 K/K, 1 K/B, 4 B



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JANUARY 30, 1935

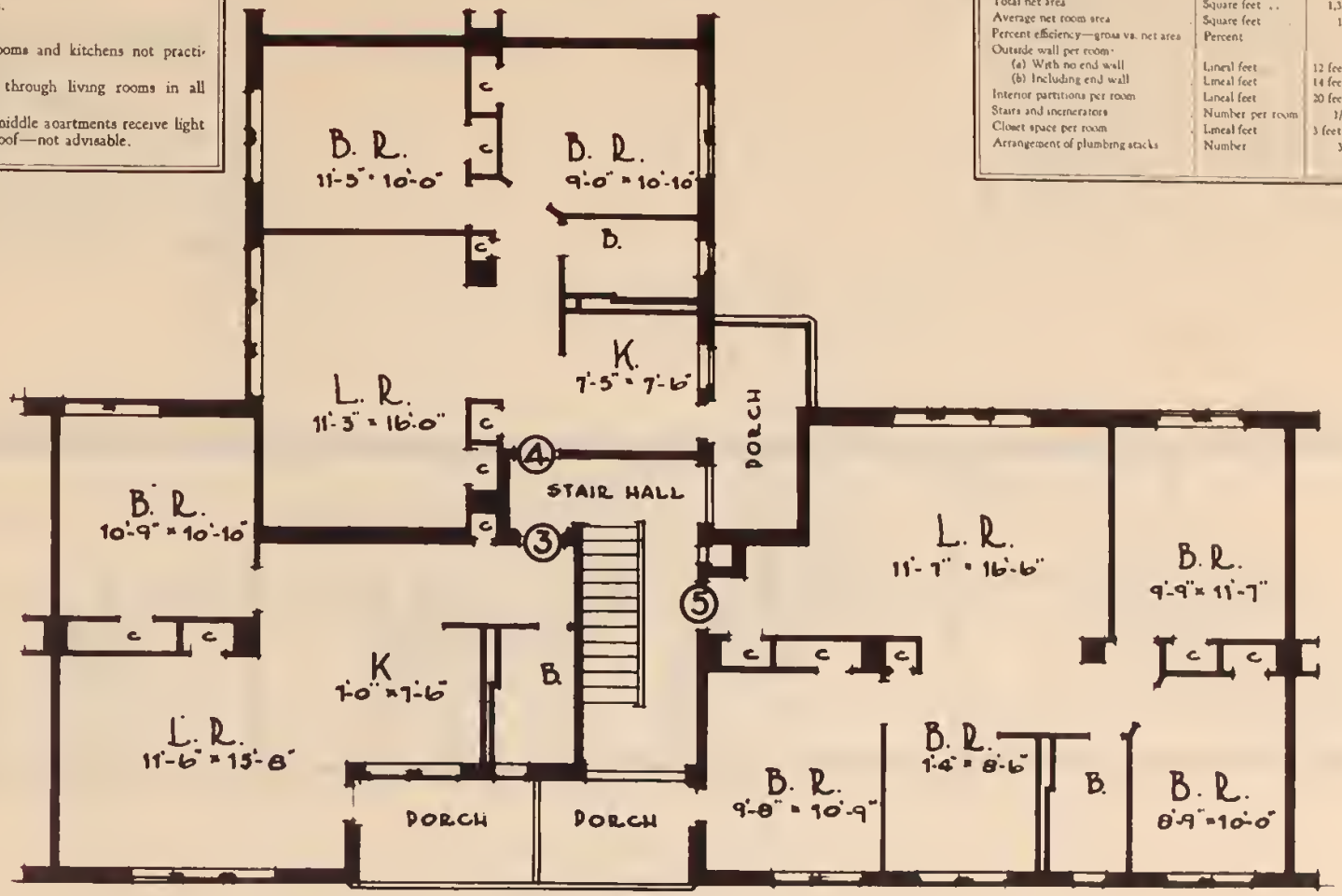
INEFFECTIVE PLAN
No. 2

REMARKS

1. Title: 3—4—5 room unit.
2. Type of plan: T-unit with balconies.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as point of meeting of three intersecting ribbon units.
4. General:
   (a) Merging of living rooms and kitchens not practicable.
   (b) Compulsory passing through living rooms in all apartments.
   (c) Kitchens in left and middle apartments receive light from under porch roof—not advisable.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	12
Total occupancy	Persons	15
Total gross area	Square feet	2,173
Average gross room area	Square feet	181
Total net area	Square feet	1,361
Average net room area	Square feet	113
Percent efficiency—gross vs. net area	Percent	62.6
Outside wall per room:		
(a) With no end wall	Lineal feet	12 feet 6 inches
(b) Including end wall	Lineal feet	14 feet 8 inches
Interior partitions per room	Lineal feet	20 feet 3 inches
Stairs and incinerators	Number per room	1/12
Closet space per room	Lineal feet	3 feet 10 inches
Arrangement of plumbing stacks	Number	3 B/K



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JANUARY 30, 1935

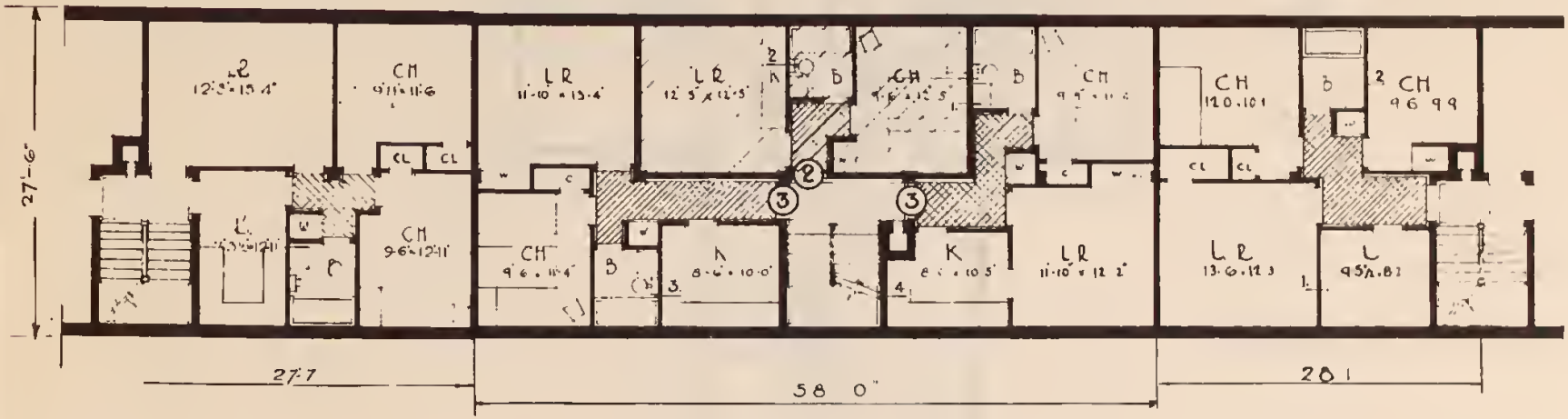
INEFFECTIVE PLAN
No. 3

REMARKS

1. Title: 3—2s—3-room unit with two 4-room units adjoining.
2. Type of plan: Ribbon unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon.
4. General:
   (a) Center unit:
      (1) No through ventilation in middle apartment.
      (2) Poor arrangement of plumbing necessitates excessive stack lines.
      (3) No entry closets.
      (4) No linen closet in middle apartment.
   (b) End units:
      (1) Two entrance doors in left apartment questionable.
      (2) No entry closets.
      (3) Closets in bedrooms of right apartments poorly planned.
      (4) No space allowed for plumbing stacks.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	16
Total occupancy	Persons	19
Total gross area	Square feet	3,126
Average gross room area	Square feet	195
Total net area	Square feet	1,937
Average net room area	Square feet	121
Percent efficiency—gross vs. net area	Percent	61.9
Outside wall per room:		
With no end wall	Lineal feet	14 feet 2 inches
Interior partitions per room	Lineal feet	27 feet 2 inches
Stairs and incinerators	Number per room	2/16
Closet space per room	Lineal feet	3 feet 1 inch
Arrangement of plumbing stacks	Number	2 B, 3 B/K, 2 K



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JANUARY 30, 1935

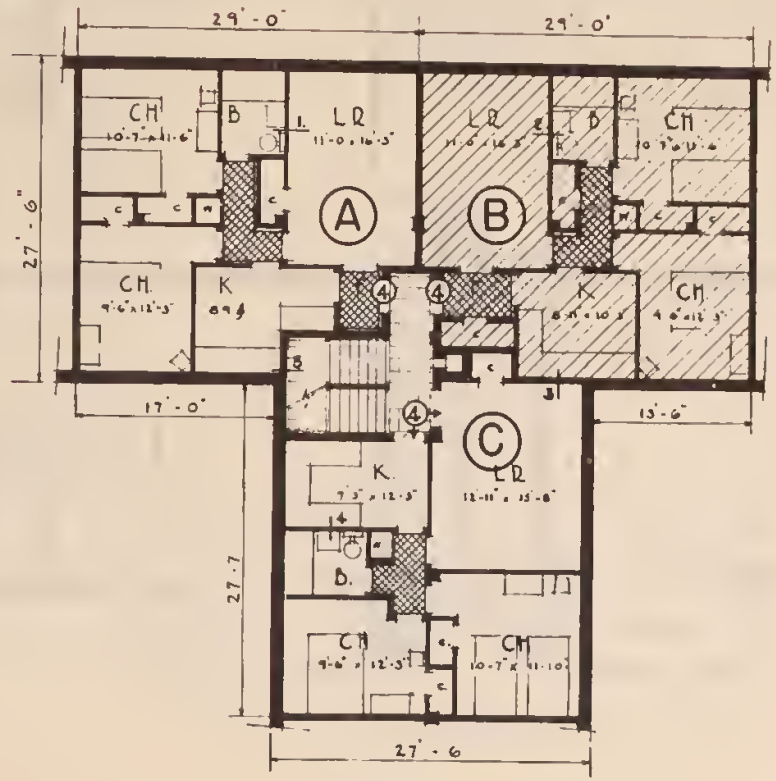
INEFFECTIVE PLAN
No. 4

REMARKS

1. Title: 4—4—4-room unit.
2. Type of plan: T-unit.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) May be used as a point of meeting of three intersecting ribbon units.
4. General:
   (a) Poor arrangement of plumbing necessitates excessive stack lines.
   (b) No pipe spaces allowed for plumbing.
   (c) No entrance vestibule in lower apartment.
   (d) No entry closets in left or lower apartments.
   (e) Two entrance doors in lower apartment questionable.
   (f) Lighting in kitchen of right apartment poor.
   (g) Bedrooms not rectangular in shape.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	12
Total occupancy	Persons	15
Total gross area	Square feet	2,354
Average gross room area	Square feet	196
Total net area	Square feet	1,560
Average net room area	Square feet	130
Percent efficiency—gross vs. net area	Percent	66.3
Outside wall per room:		12 feet
(a) With no end wall	Lineal feet	
(b) Including end wall	Lineal feet	14 feet 5 inches
Interior partitions per room	Lineal feet	28 feet 7 inches
Stairs and incinerators	Number per room	1/12
Closet space per room	Lineal feet	4 feet 7 inches
Arrangement of plumbing stacks	Number	1 B/K 2 B 2 K



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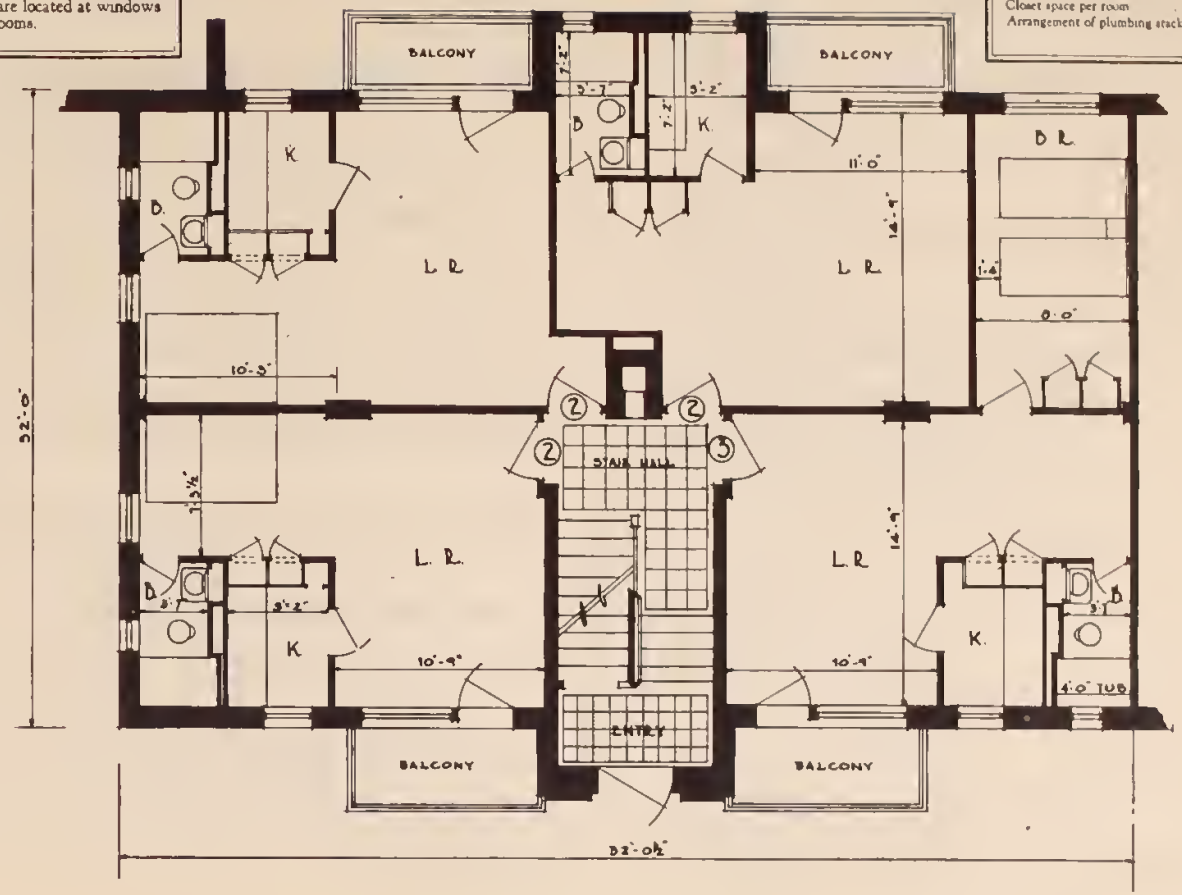
INEFFECTIVE PLAN
No. 5

REMARKS

1. Title: 2—2—3—2-room unit.
2. Type of plan: Ribbon unit with balconies.
3. Characteristics:
   (a) An apartment house type plan.
   (b) On-center column construction.
   (c) Bathrooms same throughout.
   (d) Used as a ribbon.
4. General:
   (a) Porch area not included in computations.
   (b) No through ventilation in three apartments.
   (c) L-shaped living rooms not practical.
   (d) All kitchens too small.
   (e) Corner location of bathrooms in two left apartmenes utilizes best habitable space.
   (f) Balconies for each apartment are located at windows giving light to important rooms.

STATISTICS

Descriptive Item	Unit Used	Quantity
Number of rooms in unit	Rooms	9
Total occupancy	Persons	9
Total gross area	Square feet	1,748
Average gross room area	Square feet	194
Total net area	Square feet	1,230
Average net room area	Square feet	137
Percent efficiency—gross vs. net area	Percent	70.2
Outside wall per room: Including end wall	Lineal feet	13 feet 3 inches
Interior partitions per room	Lineal feet	23 feet
Stairs and incinerators	Number per room	1/9
Closet space per room	Lineal feet	2 feet 7 inches
Arrangement of plumbing stacks	Number	4 B/K



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JANUARY 30, 1935

INEFFECTIVE PLAN
No. 6

OUTSTANDING LIST OF ITEMS TO BE AVOIDED IN LOW-RENT HOUSING

SITE PLAN

AVOID

Excessive land coverage—buildings should not occupy over 25% of total land area except in special cases.

Traffic streets running through development wherever possible.

Placing of buildings on true north and south line thereby limiting possibilities of better exposure and sunlight.

Widespread closing of existing streets and opening of new ones in order to accomplish elegant site plan, without regard to cost involved.

Locating buildings on site in a closed square or some similar unstudied form, thereby eliminating the advantages to be gained through cross ventilation and a clear view..

Obtaining large expanse of playground and lawn or park space through crowded grouping of buildings on other portions of the site.

Placing walks and drives for artistic effect rather than for practicability.

Giving the matters of orientation and prevailing winds precedence over more important factors.

Having style and type of design dictate the selection of dwelling units to be used rather than an intense study of prevailing conditions.

The use of site plans characteristic of level plots on hilly ground, and vice versa.

DESIGN OF BUILDINGS

AVOID

Overemphasis of architectural detail instead of carefully studied mass effectiveness.

Unnecessary and discordant blending of materials on front elevations for decorative effects.

The absence of relation between exterior treatment and interior plan requirements.

Elaborating on detail that may prove to be a passing fad that will detract from the permanent value of the property.

Decorative details unrelated to structural frame.

Excessive hallways and corridors in plan.

Unnecessary basement or cellar space.

Giving choice plan locations to kitchens and bathrooms at expense of major rooms.

Excessive heights of buildings—three stories considered maximum except for special conditions.

Materials and equipment that may be inexpensive for initial cost but with high upkeep charges.

Minimum plan dimensions as adopted by Housing Division, whenever possible.

Unnecessary or questionable extravagances that will tend to defeat the fundamental purposes and aims of low-rent housing work.